

WA 2302
9-19-07
8a

**Marcia
Bailey/R10/USEPA/US**
09/19/2007 01:22 PM

To Christy Brown/R10/USEPA/US@EPA, Christy
Brown/R10/USEPA/US, Christy Brown@EPA
cc
bcc
Subject Fw: Points in Boeing Plant Two Arguments

Hi Christy,
Lon wrote this a few months ago but in running across it, I thought we should tuck it away from Rhone as well.
Marcia

----- Forwarded by Marcia Bailey/R10/USEPA/US on 09/19/2007 12:46 PM -----

**Lon
Kissinger/R10/USEPA/US**
06/07/2007 05:12 PM

To bailey.marcia@epa.gov, sierra_moon@msn.com, Shawn
Blocker/R10/USEPA/US@EPA, Julius
Nwosu/R10/USEPA/US@EPA
cc
Subject Points in Boeing Plant Two Arguments

RECEIVED
EPA
JUN 11 2007

Arguments for inclusion of API and Tribal scenarios at BP2:

- 1) The 1999 King County seafood consumption survey documented crab and bottomfish consumption at T105 (SEE slide 3 in the attached power point) and the Spokane Street Bridge at the base of the East Waterway. In fact, the Spokane Street Bridge was one of the most popular harvest locations.
- 2) Crab and English Sole PCB homolog patterns were similar to PCB homolog patterns for LDW sediments as a whole rather than PCB homolog patterns near Boeing Plant 2, indicating that the home range of this species is throughout the LDW and that contaminants from Boeing Plant 2 could be increasing PCB body burdens of crab and English Sole at harvest points in the downstream parts of the LDW. General information on home ranges of these species supports this assertion.
- 3) Assessment of seafood consumption risks for subsections of the Duwamish are similar to risks for the LDW as a whole, indicating the sediment PCBs are being dispersed through aquatic biota throughout the site.
- 4) Considerations of future use argue for inclusion of Tribal and API scenarios. The Muckleshoot Tribe sets gill nets throughout the LDW indicating that they would use the LDW to harvest resident species if contamination levels were low enough. The Suquamish Tribe has noted that shellfish beaches that have been closed experience high use when they are re-opened. The Duwamish represents the only marine U&A available to the Muckleshoot Tribe. The Muckleshoot Tribe has experienced great interest in improving the LDW to the point where shellfish could be harvested.



Human Use of the Lower Duwamish Waterway.ppt

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Human Use of the Lower Duwamish Waterway

Lon Kissinger, U.S. EPA Region 10

Contacts/Resources

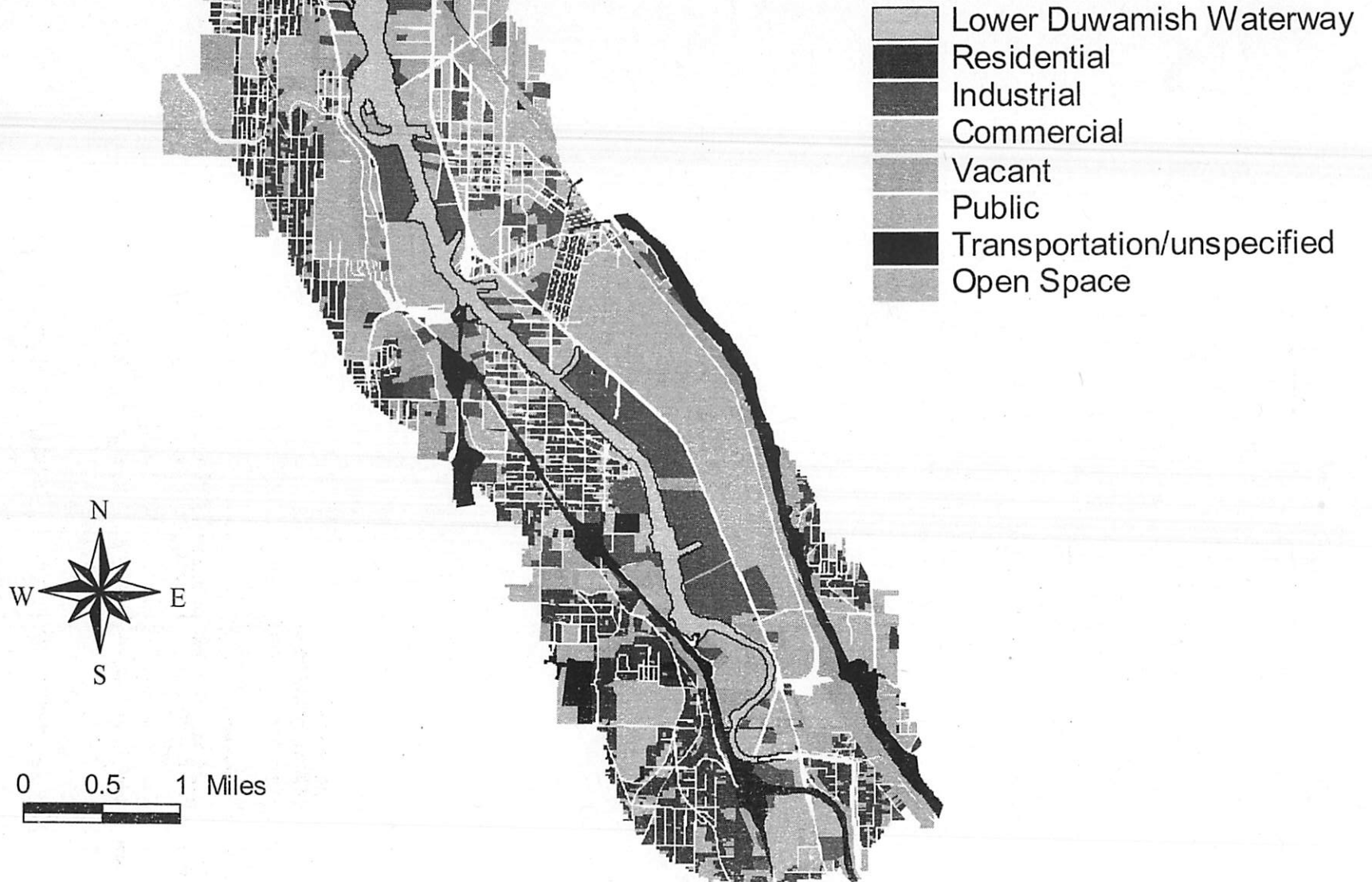
EPA

- Allison Hiltner, *site manager, sediments*
- Kris Flint, *source control*
- Bruce Duncan/Erika Hoffman, *ecological risk assessment*
- Lon Kissinger, *human health risk assessment*
- Gina Grepo Grove, *analytical chemistry*
- Martha Lentz, *hydrogeology*

WA Dept. of Ecology

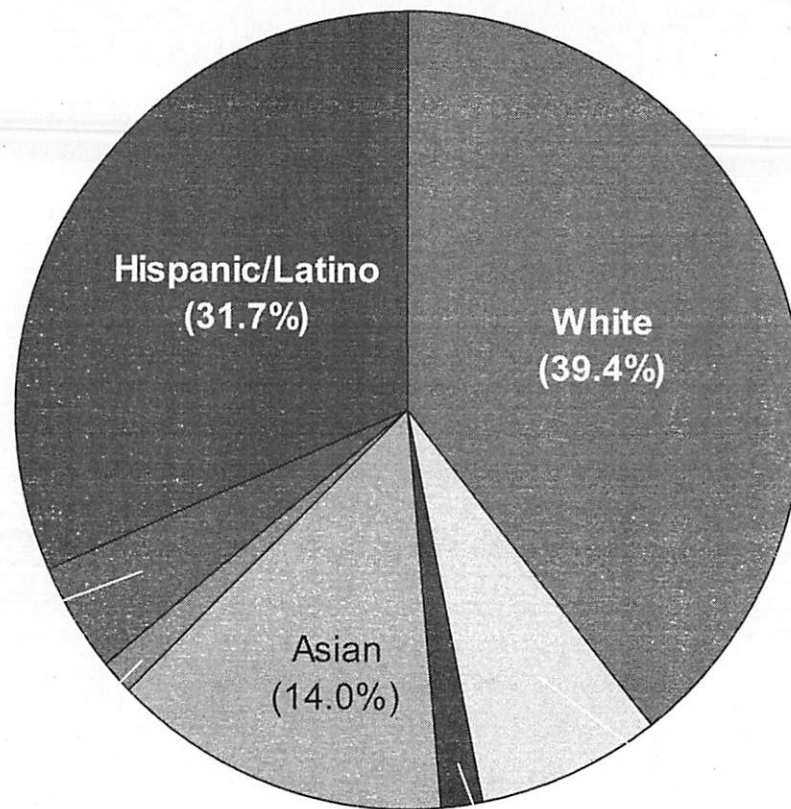
- Rick Huey, *site manager, source control*
- Rick Thomas, *source control*
- Brad Helland/Tom Gries, *technical resources*
- Fu-Shin Lee, *human health risk assessment*

Land Use in the Lower Duwamish Corridor



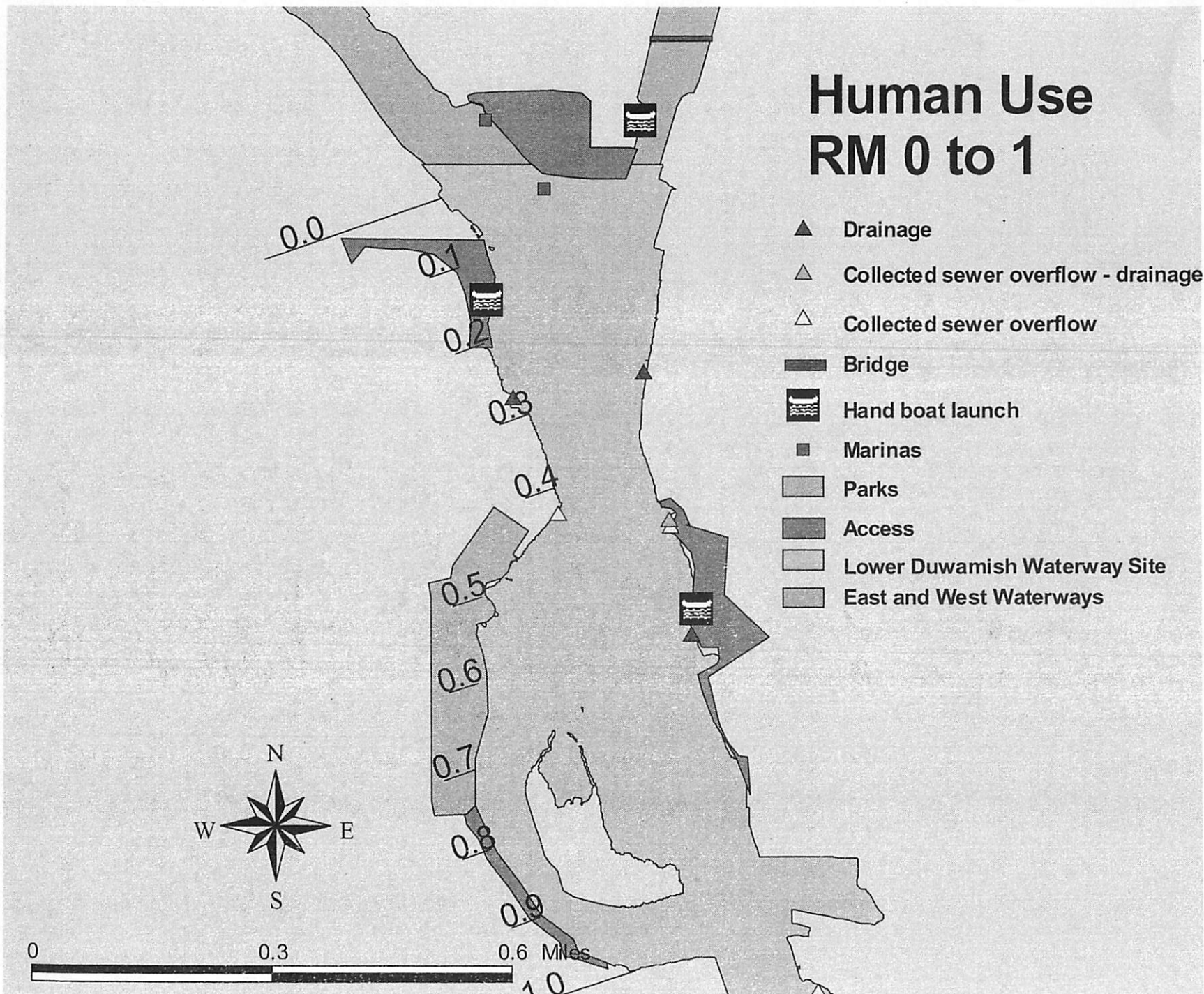
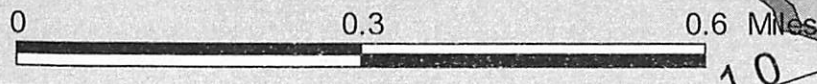
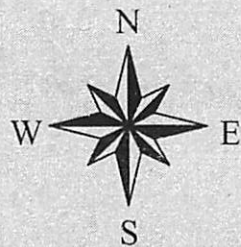
Land Use Group	Subcategory	Total
Commercial	<i>Entertainment</i>	3.12%
	<i>Hotel/Motel</i>	0.10%
	<i>Institutions</i>	0.19%
	<i>Mixed Use</i>	0.03%
	<i>Office</i>	1.18%
	<i>Parking</i>	0.35%
	<i>Retail/Service</i>	1.02%
	<i>Warehouse</i>	9.90%
	Total:	15.90%
Industrial		15.93%
Open Space		2.59%
Public	<i>Public Facilities</i>	0.07%
	<i>Schools</i>	1.70%
	Total:	1.77%
Residential	<i>Duplex/Triplex</i>	0.54%
	<i>Multi-Family</i>	1.37%
	<i>Other Housing</i>	0.24%
	<i>Single Family</i>	12.69%
	Total:	14.84%
Transportation		18.17%
Unsure		13.41%
Vacant		17.39%

Demographics of Georgetown & South Park Neighborhoods



Human Use RM 0 to 1

- ▲ Drainage
- △ Collected sewer overflow - drainage
- △ Collected sewer overflow
- Bridge
- ☐ Hand boat launch
- Marinas
- ▨ Parks
- ▨ Access
- ▨ Lower Duwamish Waterway Site
- ▨ East and West Waterways



Terminal 105



Crabber at T-105



Fish/shellfish Consumption Warning Sign

WARNING

Bottom-feeding fish, crab and shellfish may be unsafe to eat due to pollution.

El consumo de pescado del mar, cangrejos y mariscos puede ser peligroso debido a la contaminación.

Có thể không an toàn để ăn cá dưới đáy biển, cua và hải sản vỏ cứng vì bị ô nhiễm.

底層魚類、螃蟹及貝類可能因污染而不安全。

由於污染，底層魚、螃蟹和有殼水生動物可能食用不安全。

오염으로 인해, 바닥 어류, 게 및 조개를 섭취하는 것이 해가 될 수 있습니다.

В связи с загрязнением среды рыбы, которые обитают на дне, а также крабы, моллюски и ракообразные могут быть небезопасны для употребления в пищу.





90 Health

Contact Local Health Agency at:

(704) 296-4632

For More Information Call Toll-Free

Shellfish Hotline

1-800-562-5632

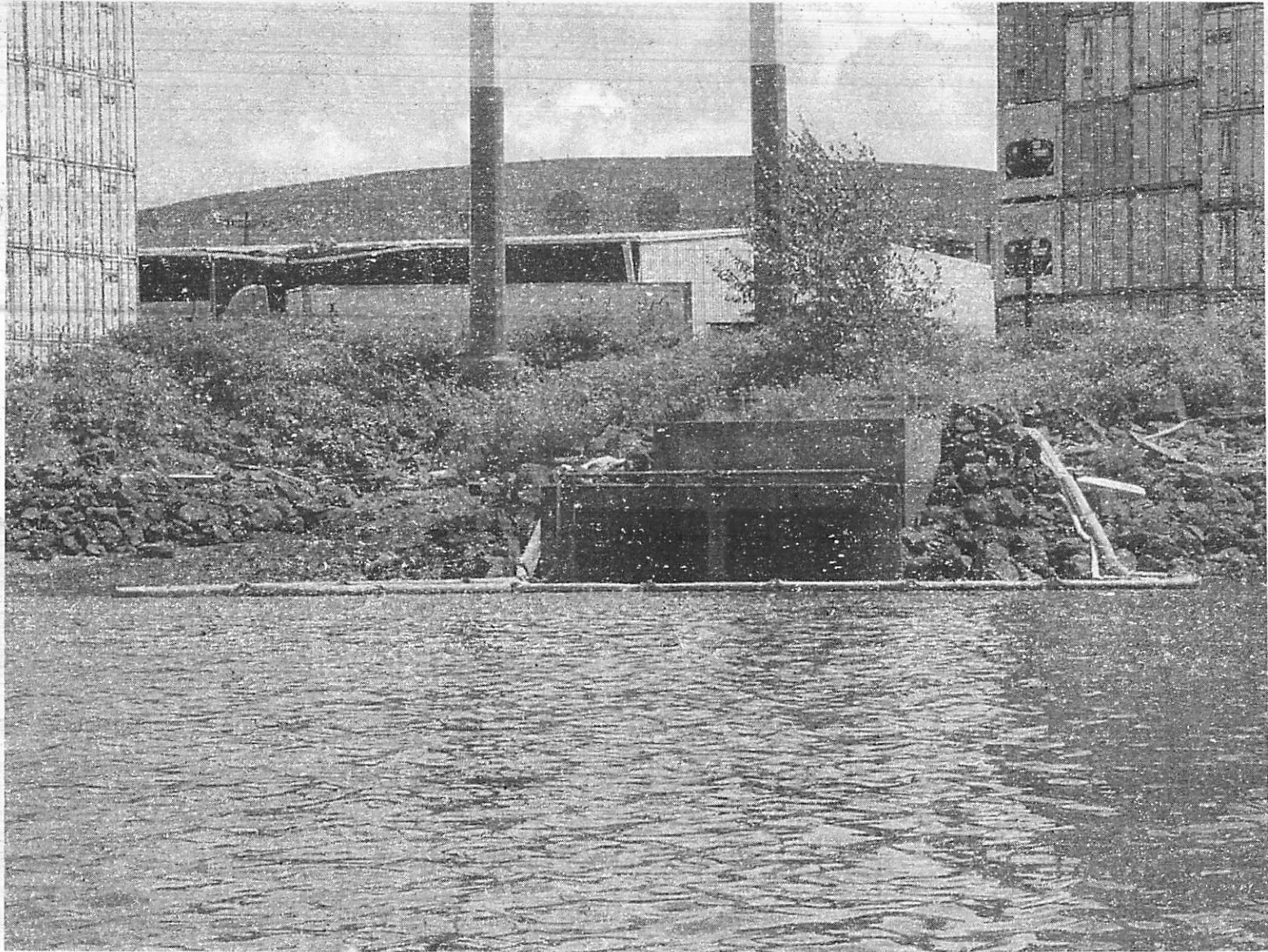
Fish Advisory Hotline

1-877-485-7316

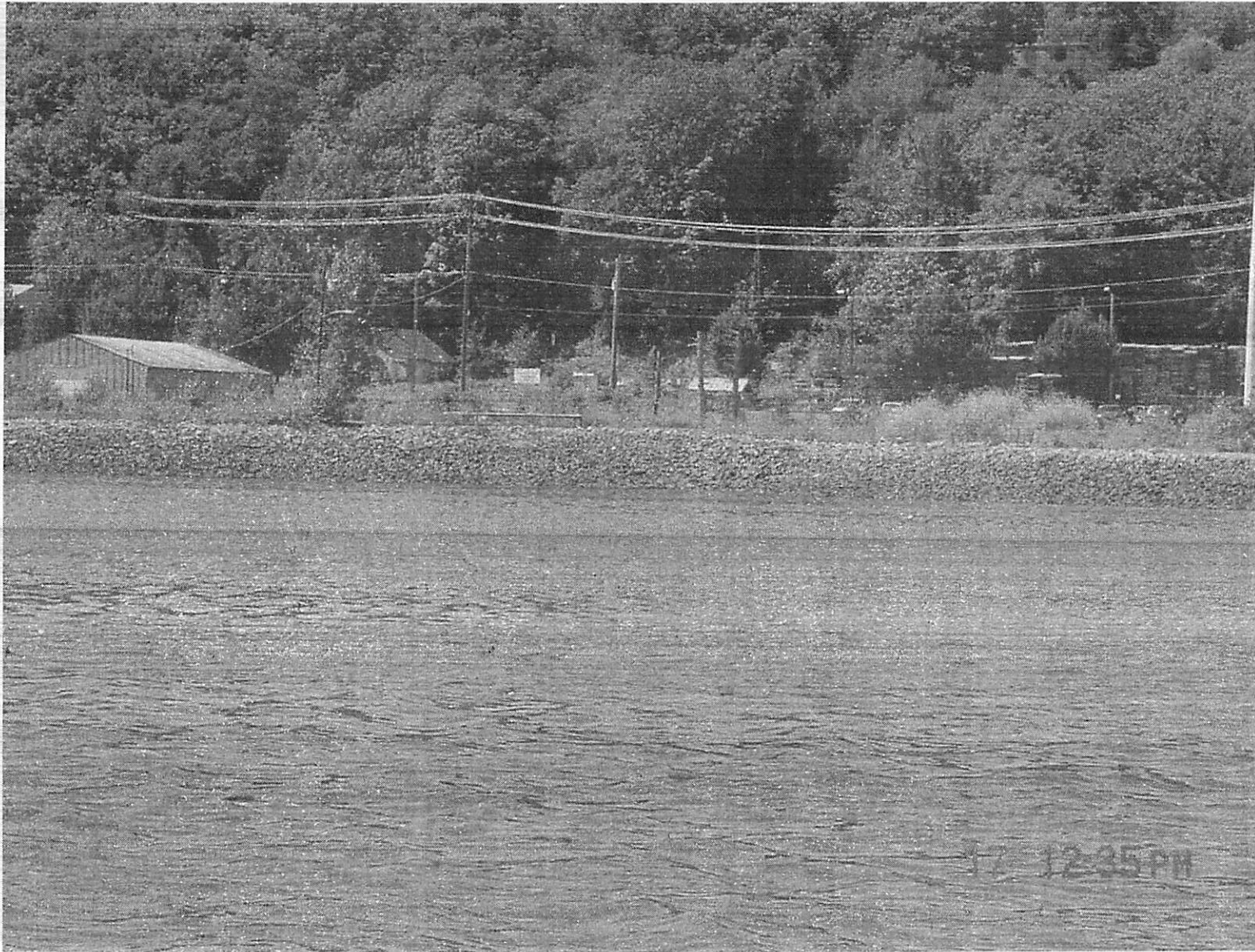
www.doh.wa.gov/ehp/ef/bktoxin.htm

www.doh.wa.gov/ehp/cefas/EHA_fish_svr.htm

Duwamish/Diagonal Way CSO



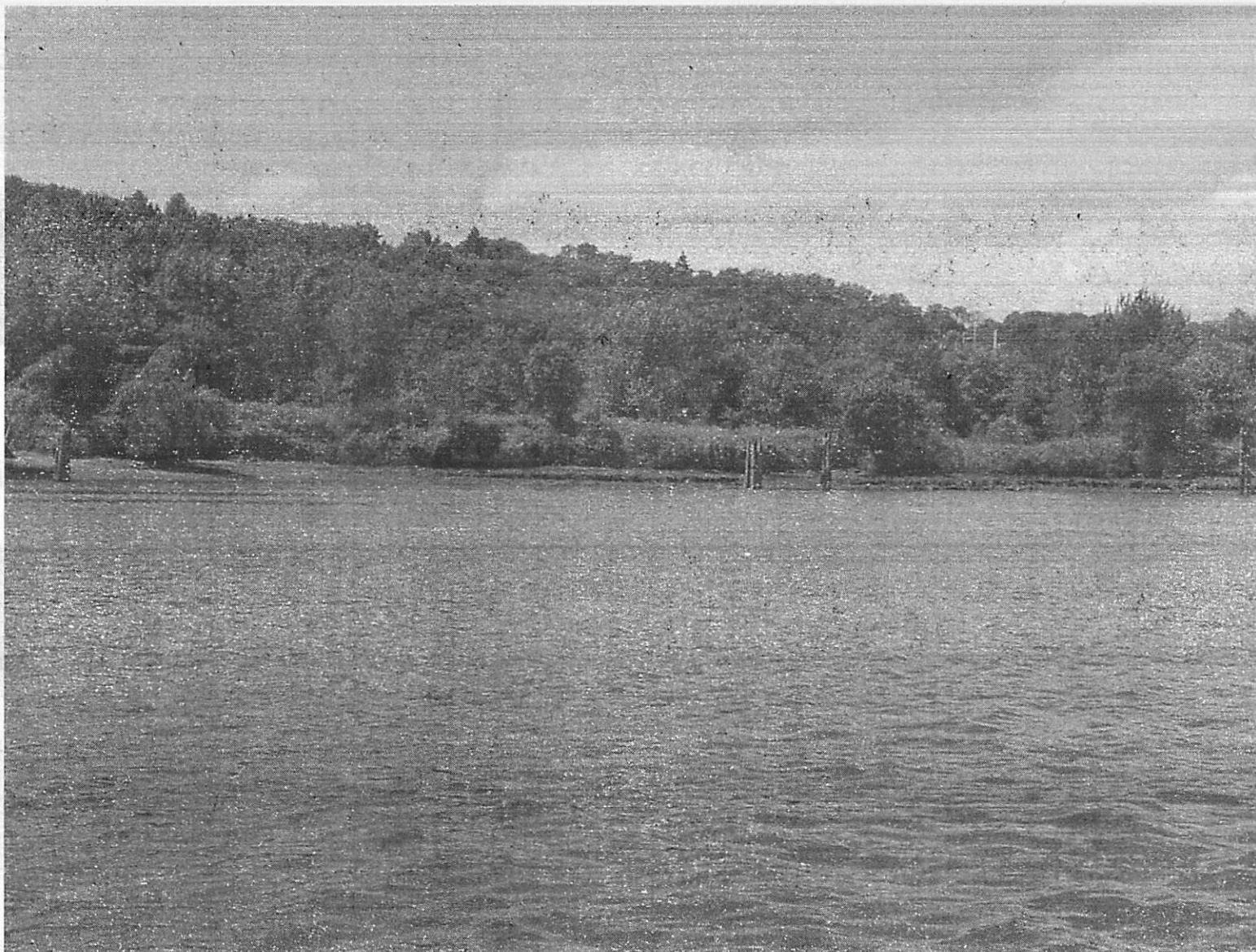
Herring House Park



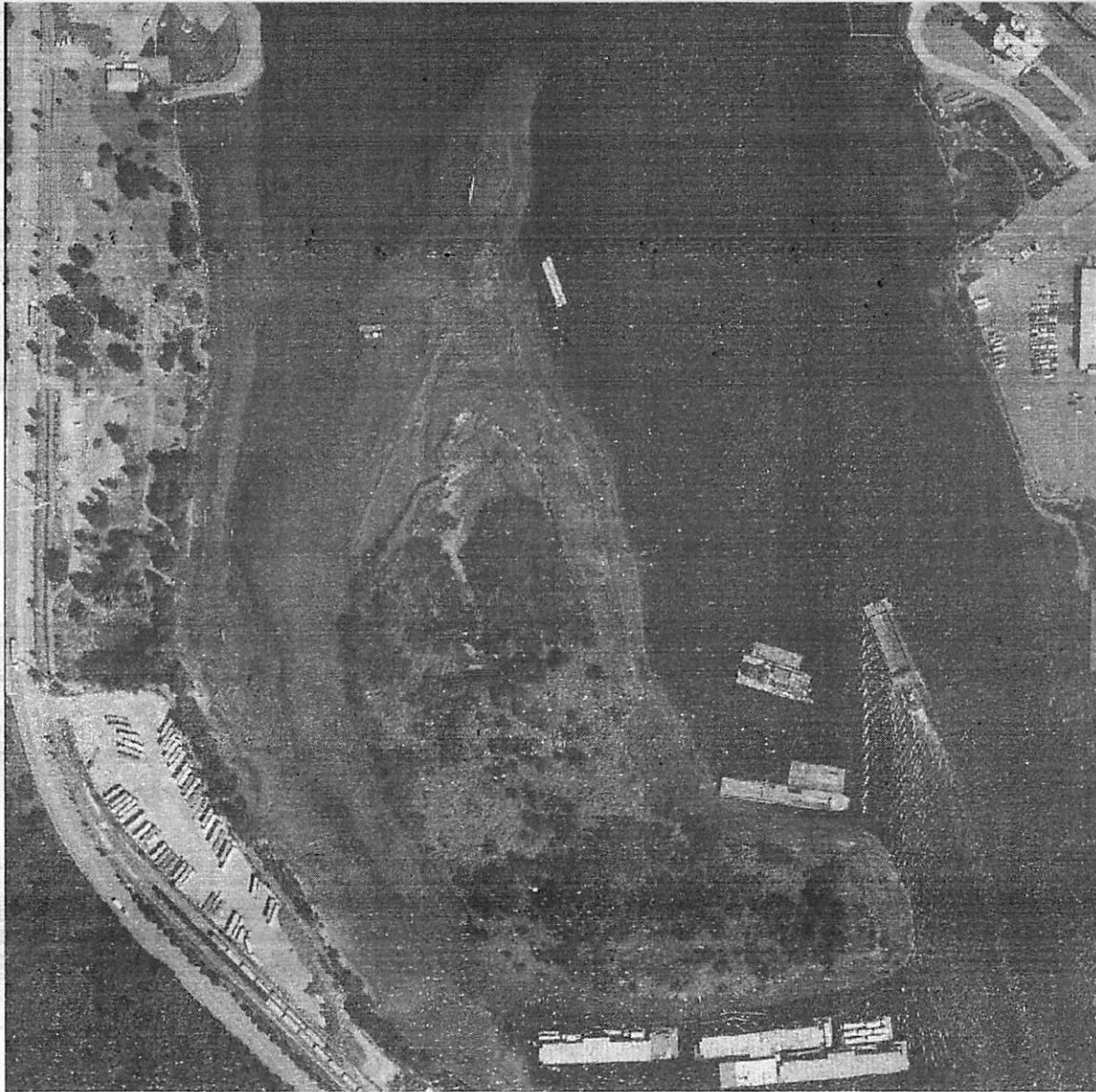
Herring House Park



Kellogg Island



Kellogg Island, Aerial View



Land Use RM 0 to 1

LIPSETT CO. LLC

BIRMINGHAM
STEEL CORP

ASH GROVE
CEMENT WEST

- Port of Seattle
- King County
- Boeing.shp
- Seattle City Light
- Commercial property
- United States



0 0.2 0.4 Miles

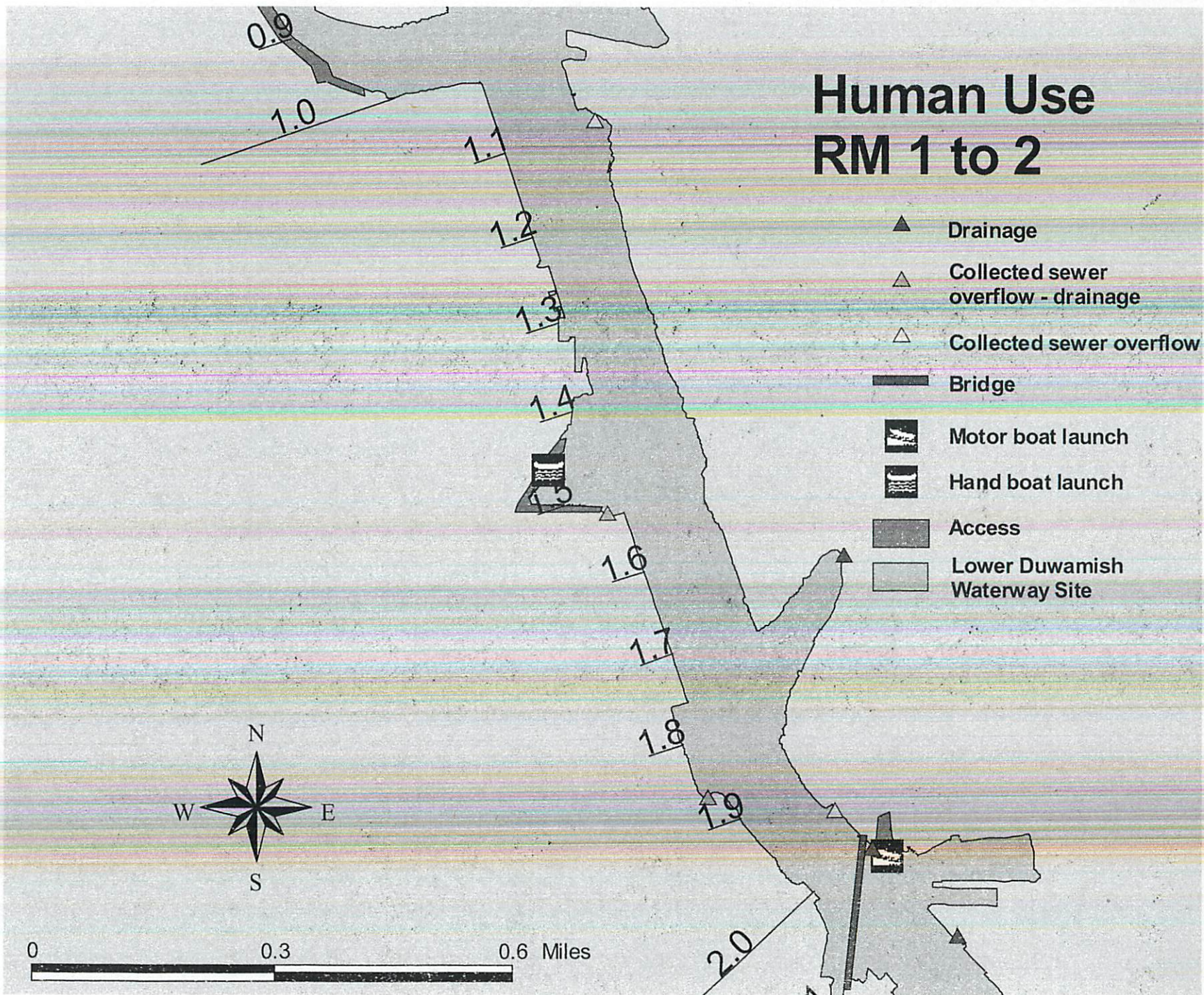
1.1

Human Use RM 1 to 2

- ▲ Drainage
- △ Collected sewer overflow - drainage
- △ Collected sewer overflow
- Bridge
- Motor boat launch
- Hand boat launch
- Access
- Lower Duwamish Waterway Site



0 0.3 0.6 Miles



First Avenue Boat Ramp



Land Use RM 1 to 2

- Port of Seattle
- King County
- Boeing
- Seattle City Light
- Commercial property
- United States

HOLNAM INC

ALASKA MARINE
LINES INC

DUWAMISH
SHIPYARD INC

LONE STAR
NORTHWEST INC

BALL-FOSTER
GLASS CONTAINER

JAMES HARDIE
GYPSUM

LONE STAR
NORTHWEST INC

BURGESS ROBERT S

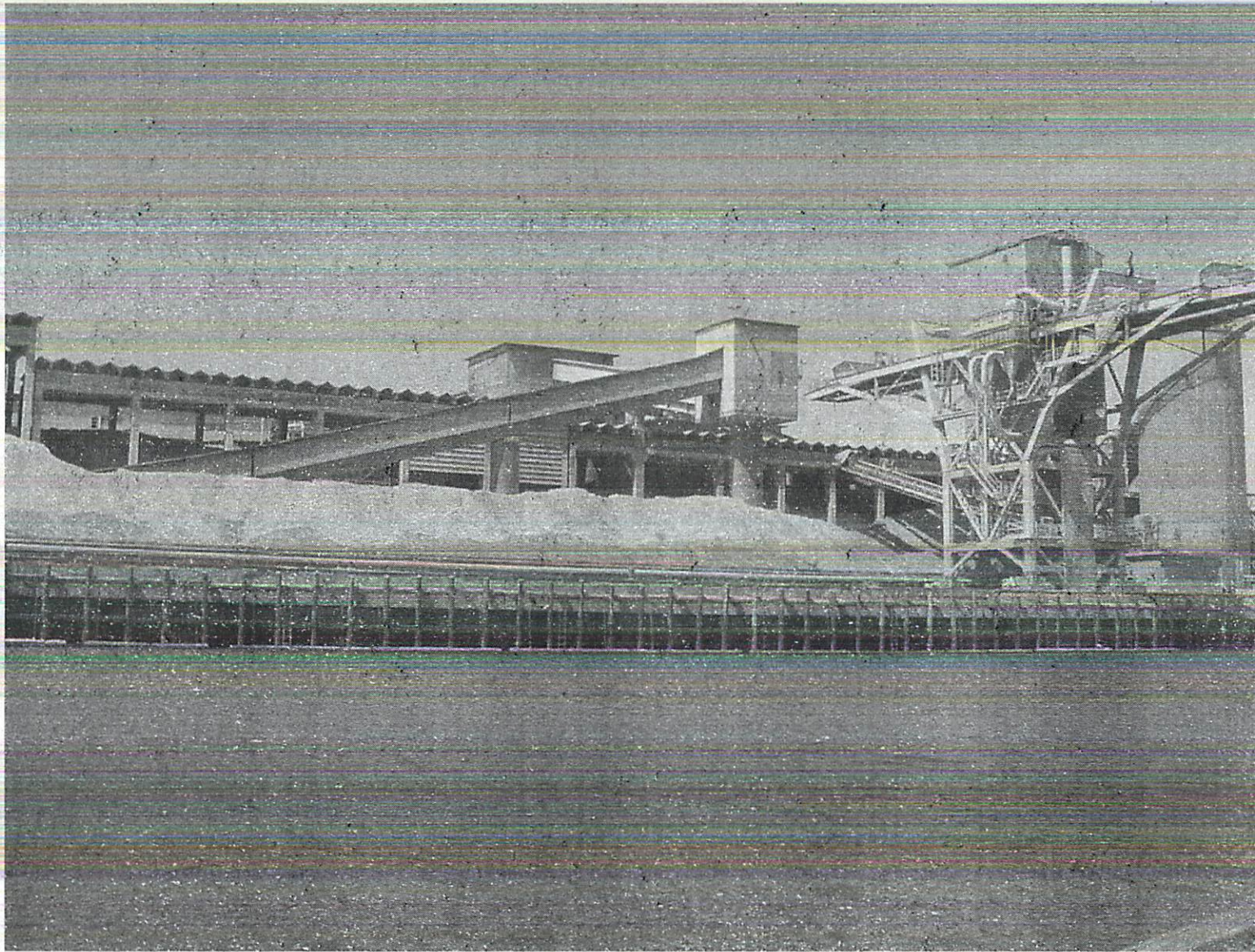
SCHNITZER INV CORP

NORTHLAND

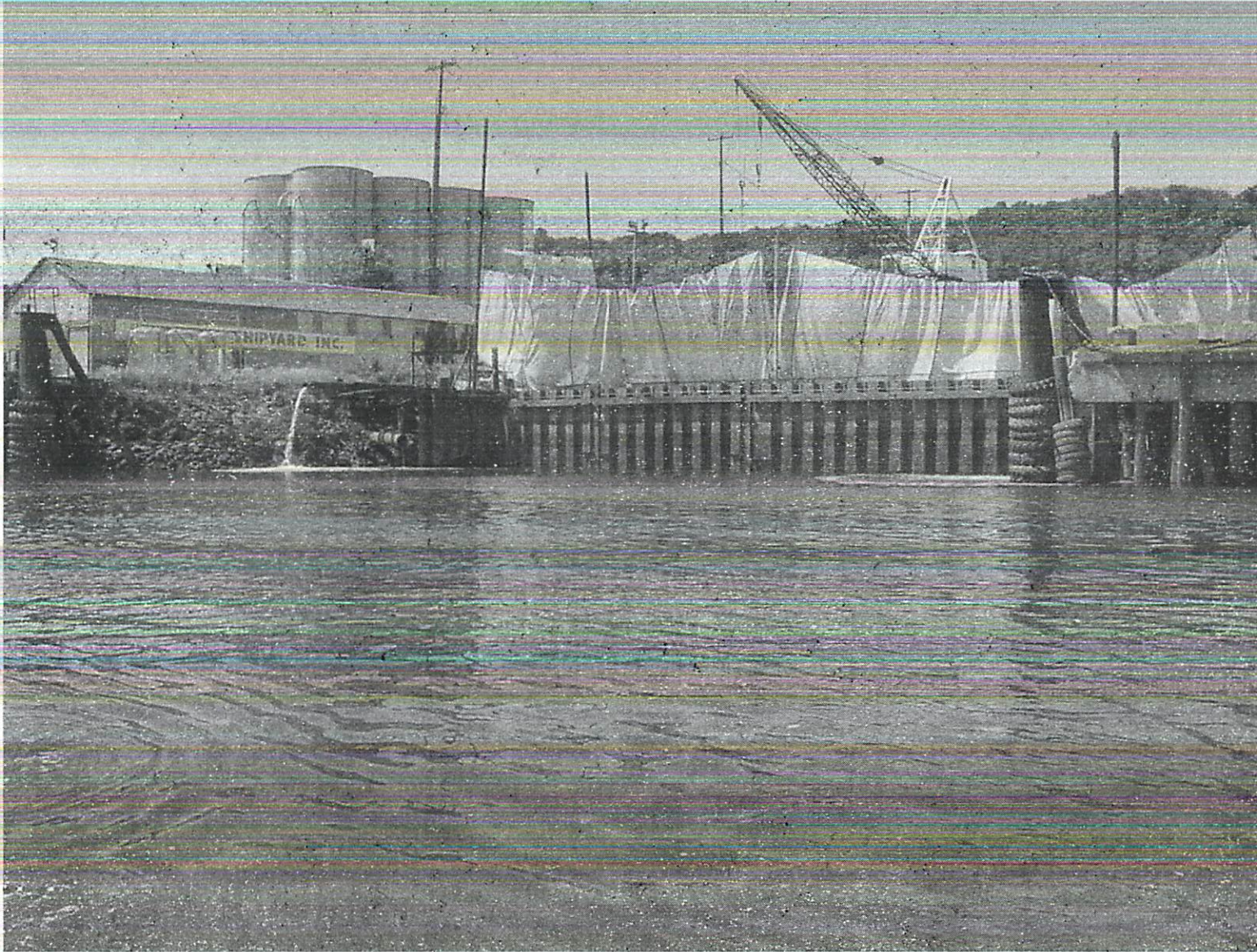


0 0.2 0.4 Miles

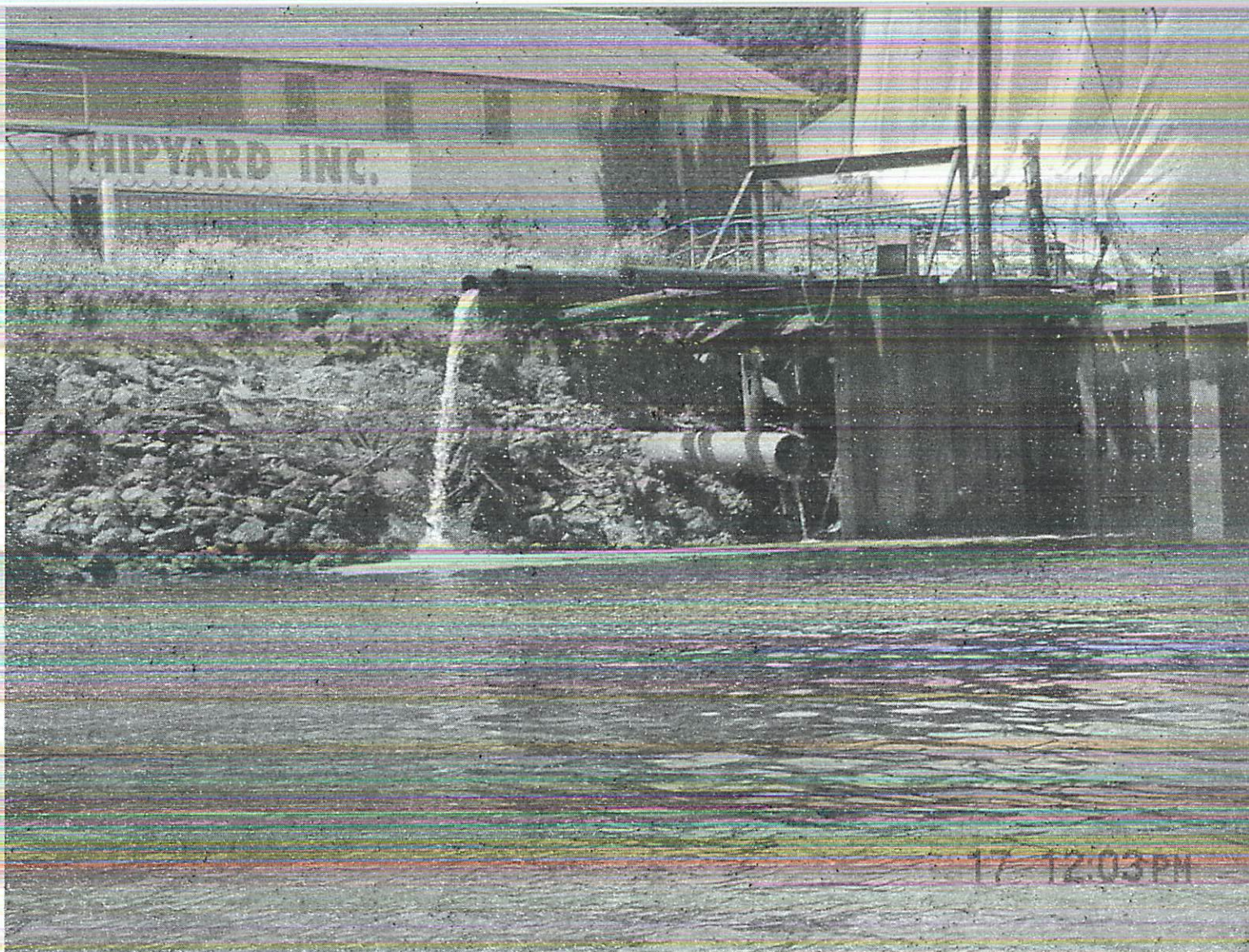
Holnam Cement



Duwamish Shipyard



Duwamish Shipyard Outfalls

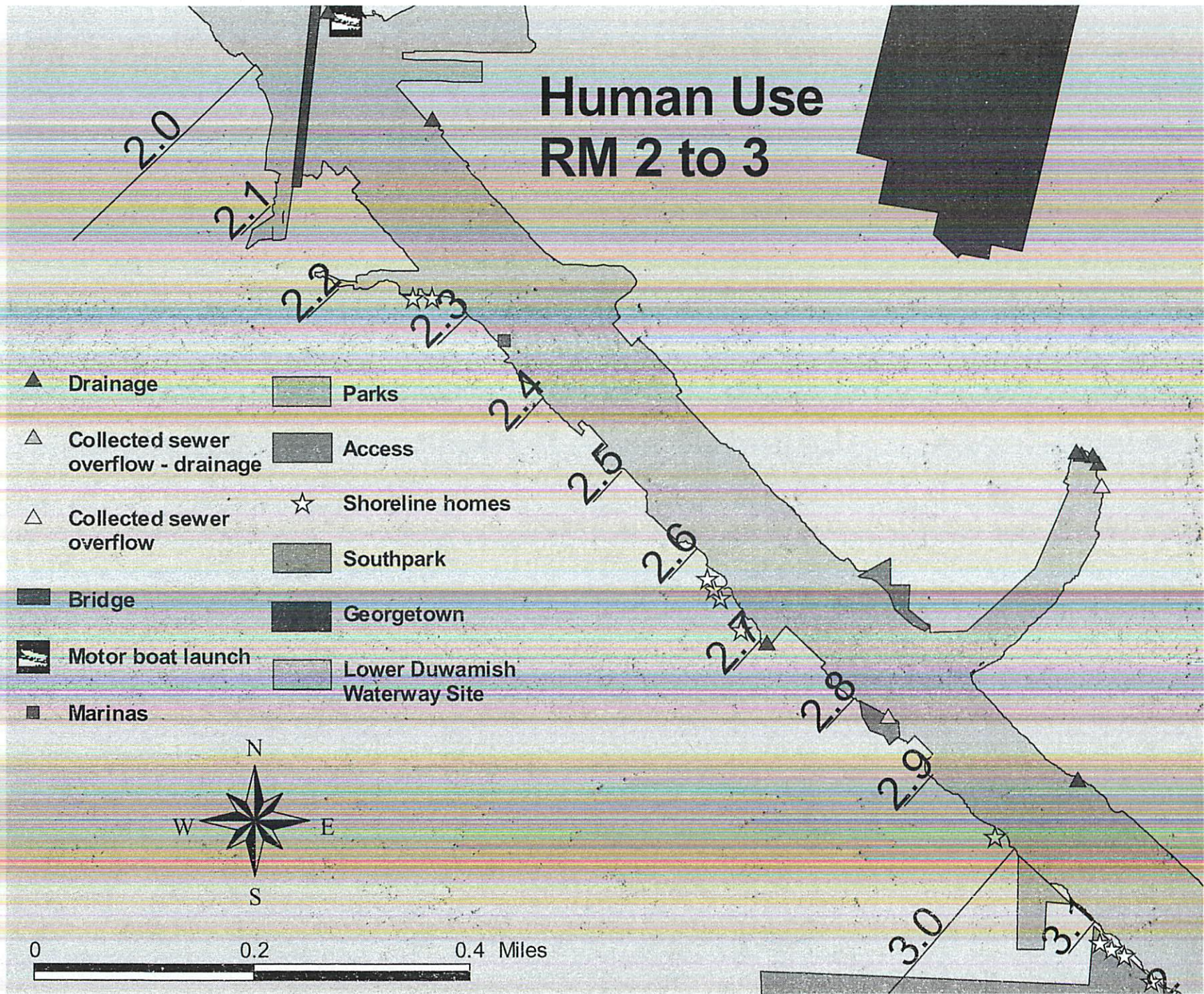


Human Use RM 2 to 3

- | | |
|---------------------------------------|--------------------------------|
| ▲ Drainage | ■ Parks |
| △ Collected sewer overflow - drainage | ■ Access |
| △ Collected sewer overflow | ☆ Shoreline homes |
| ■ Bridge | ■ Southpark |
| ■ Motor boat launch | ■ Georgetown |
| ■ Marinas | ■ Lower Duwamish Waterway Site |



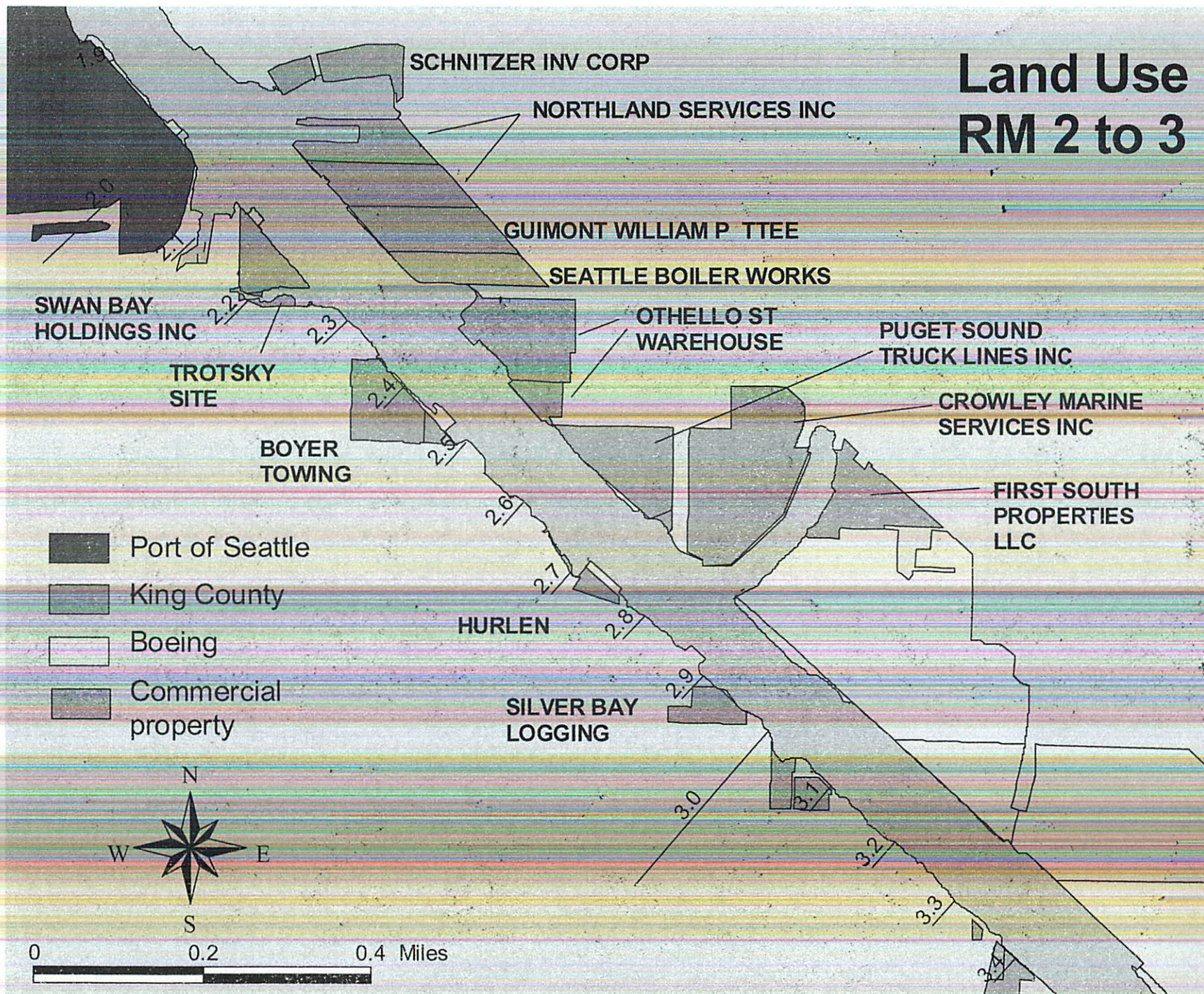
0 0.2 0.4 Miles



Gateway Park South



Land Use RM 2 to 3

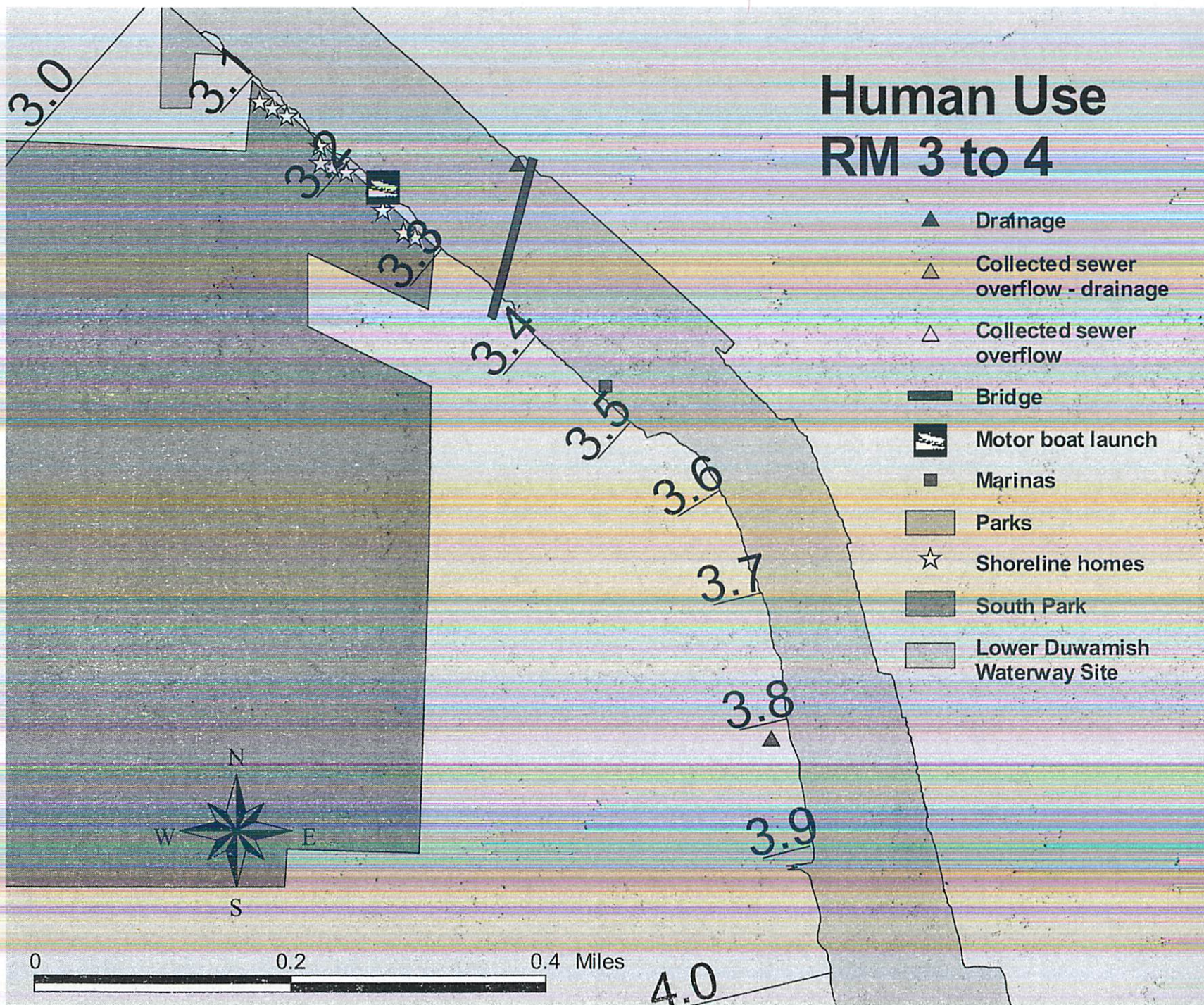


Othello Street Warehouse



Human Use RM 3 to 4

- ▲ Drainage
- △ Collected sewer overflow - drainage
- △ Collected sewer overflow
- Bridge
- Motor boat launch
- Marinas
- Parks
- ☆ Shoreline homes
- South Park
- Lower Duwamish Waterway Site



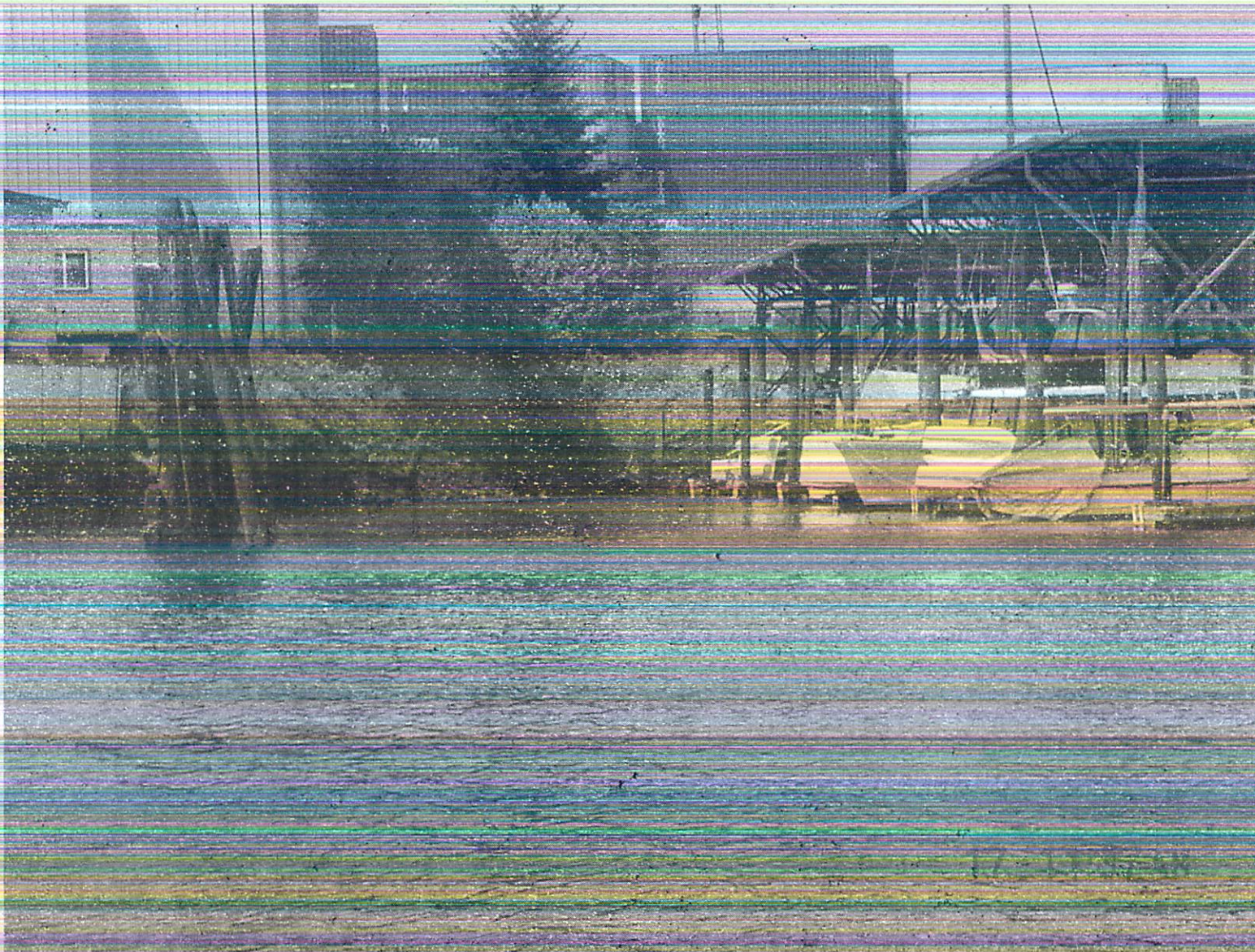
Duwamish River Park



House Along the Duwamish

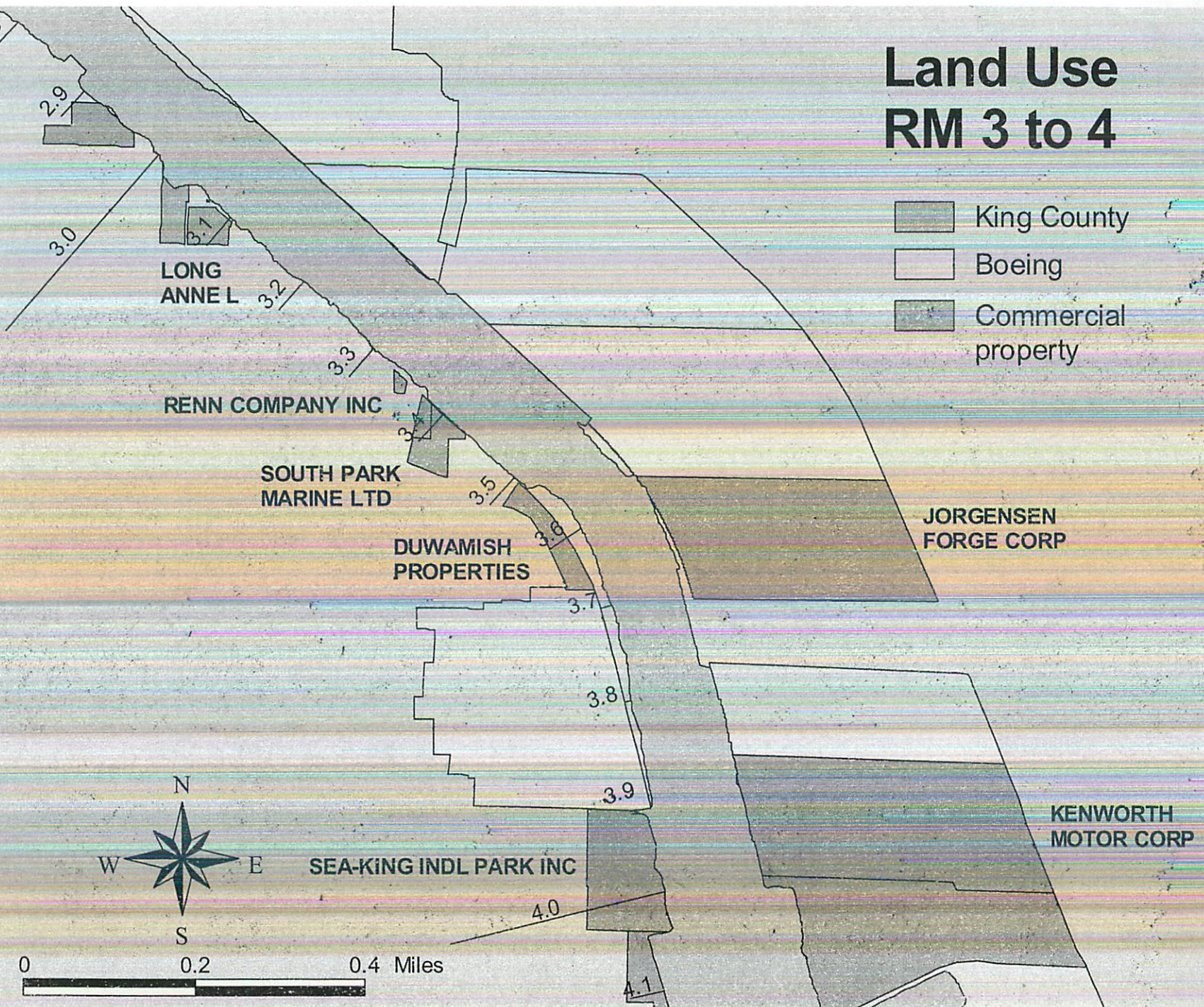


South Park Marina



Land Use RM 3 to 4

- King County
- Boeing
- Commercial property



Jorgensen Forge



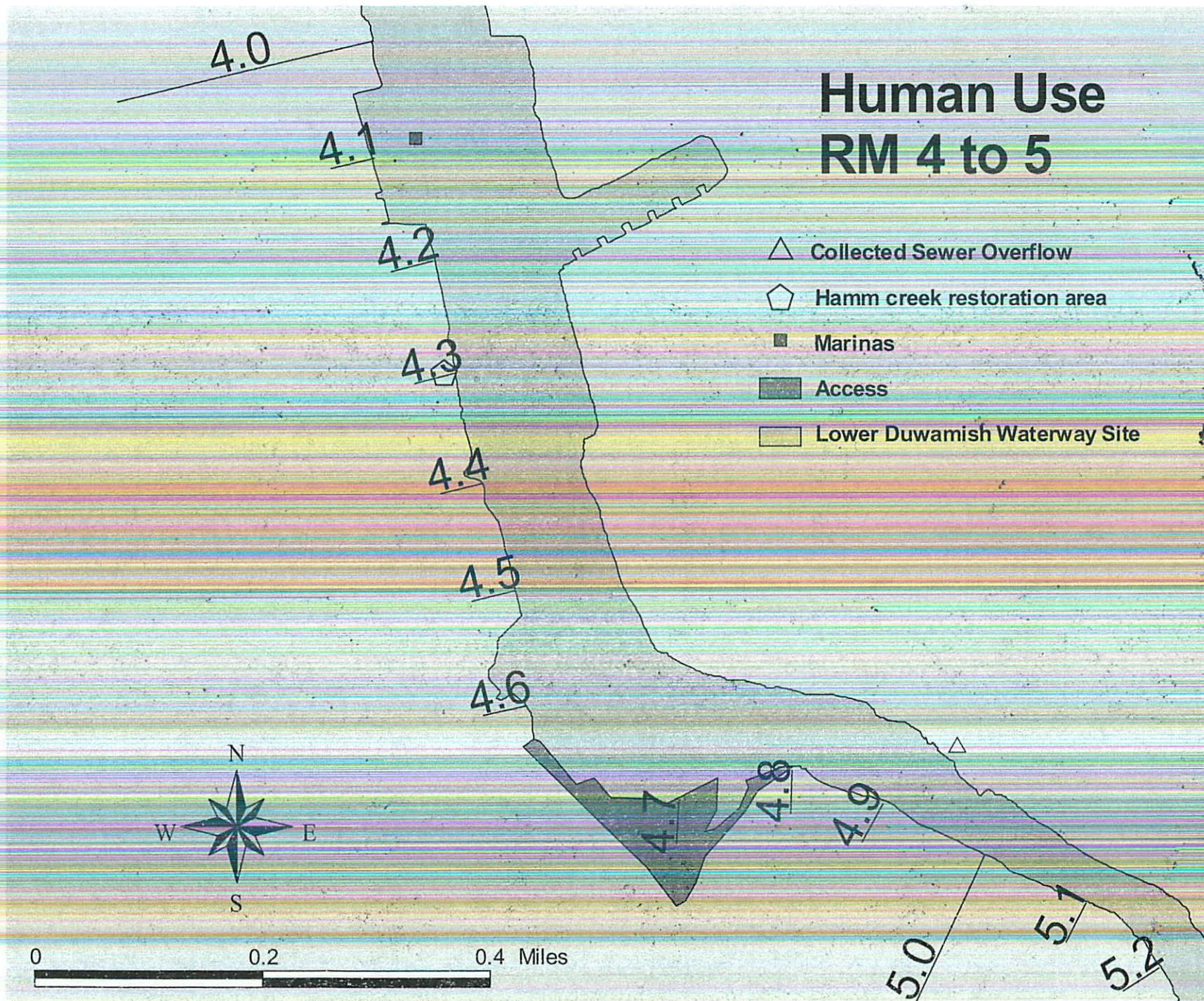
Human Use RM 4 to 5

- △ Collected Sewer Overflow
- ◡ Hamm creek restoration area
- Marinas
- Access
- Lower Duwamish Waterway Site



0 0.2 0.4 Miles

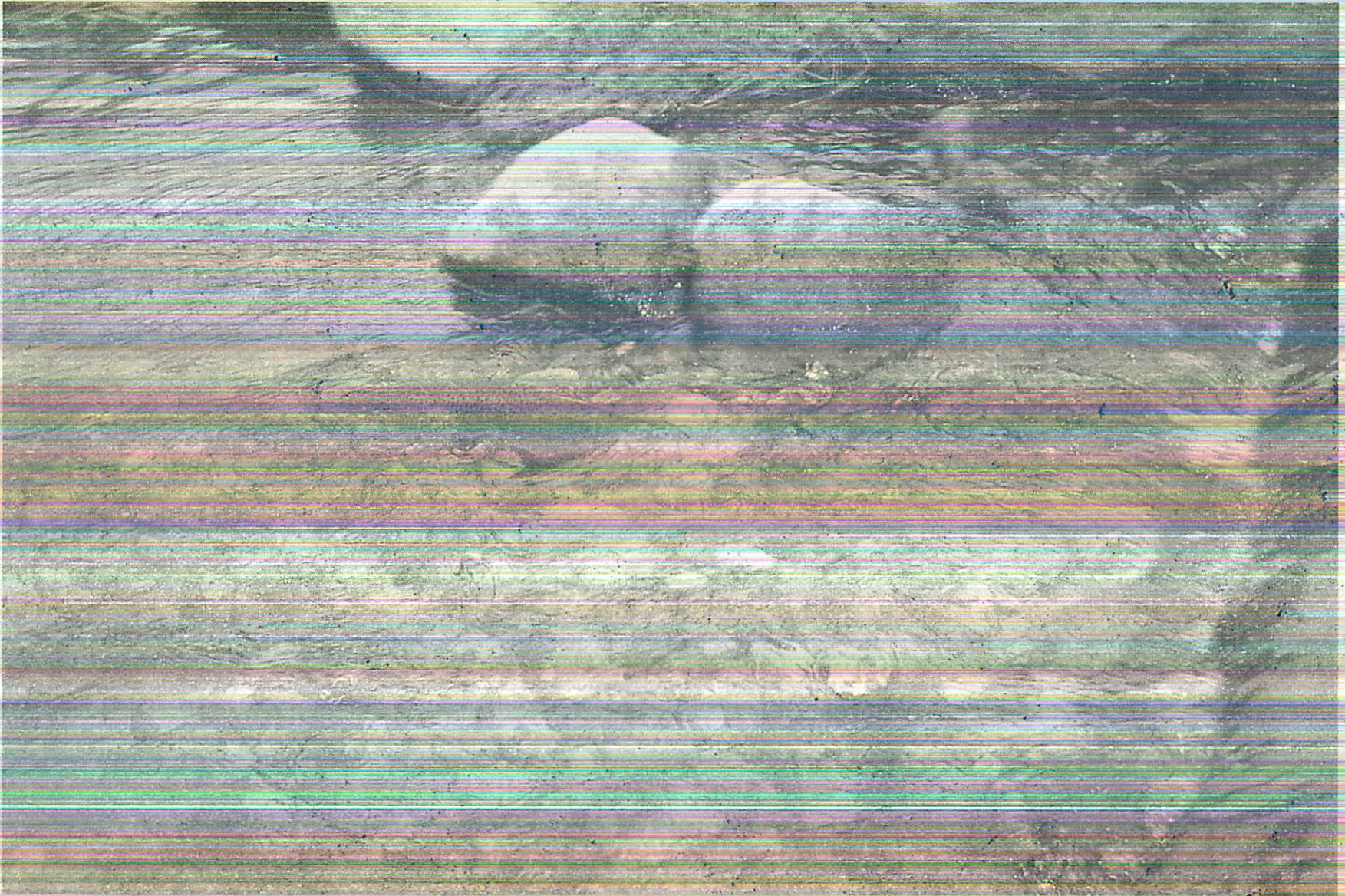
A horizontal scale bar with markings at 0, 0.2, and 0.4 miles.



Hamm Creek Restoration

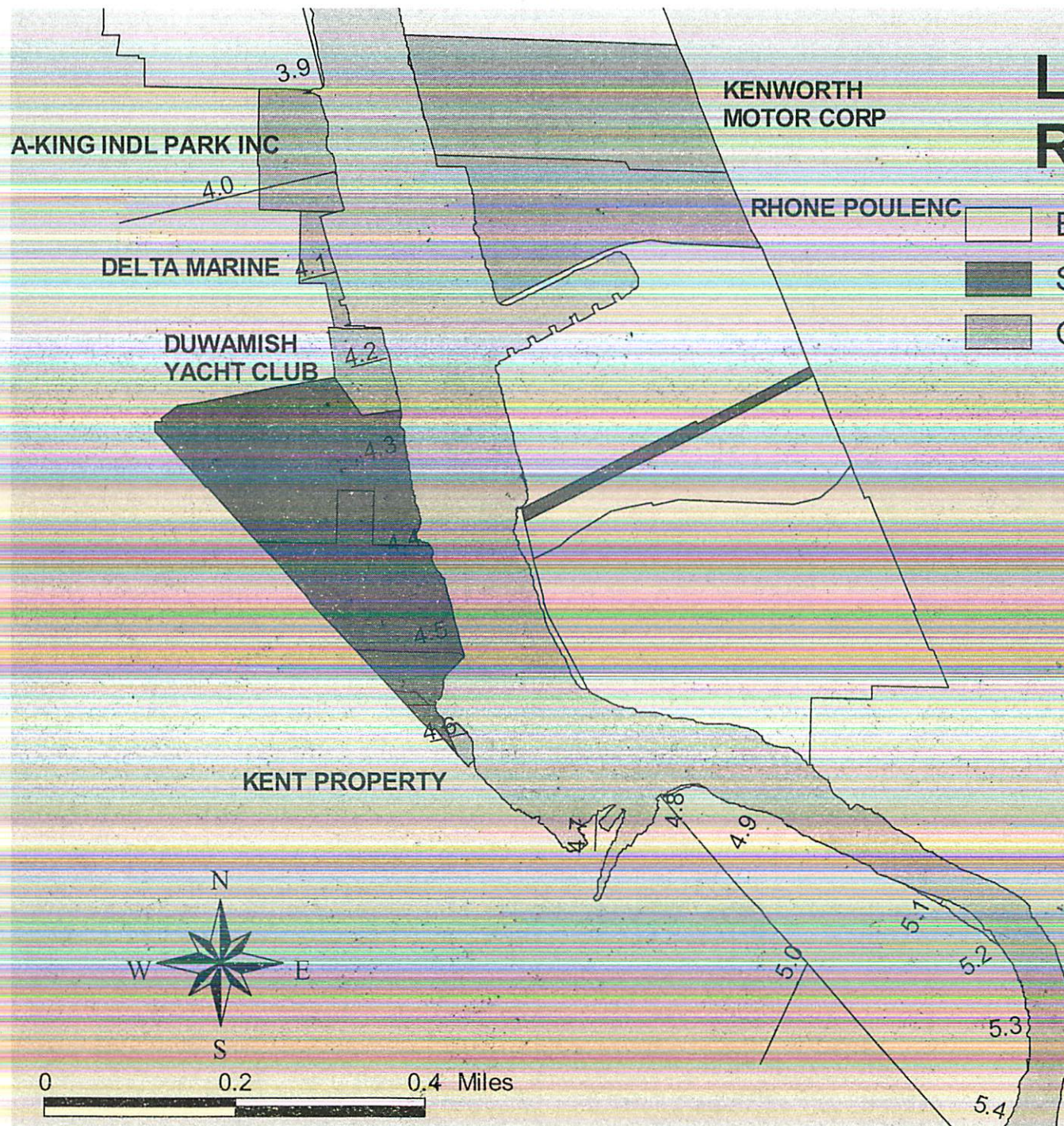


Hamm Creek Restoration



Land Use RM 4 to 5

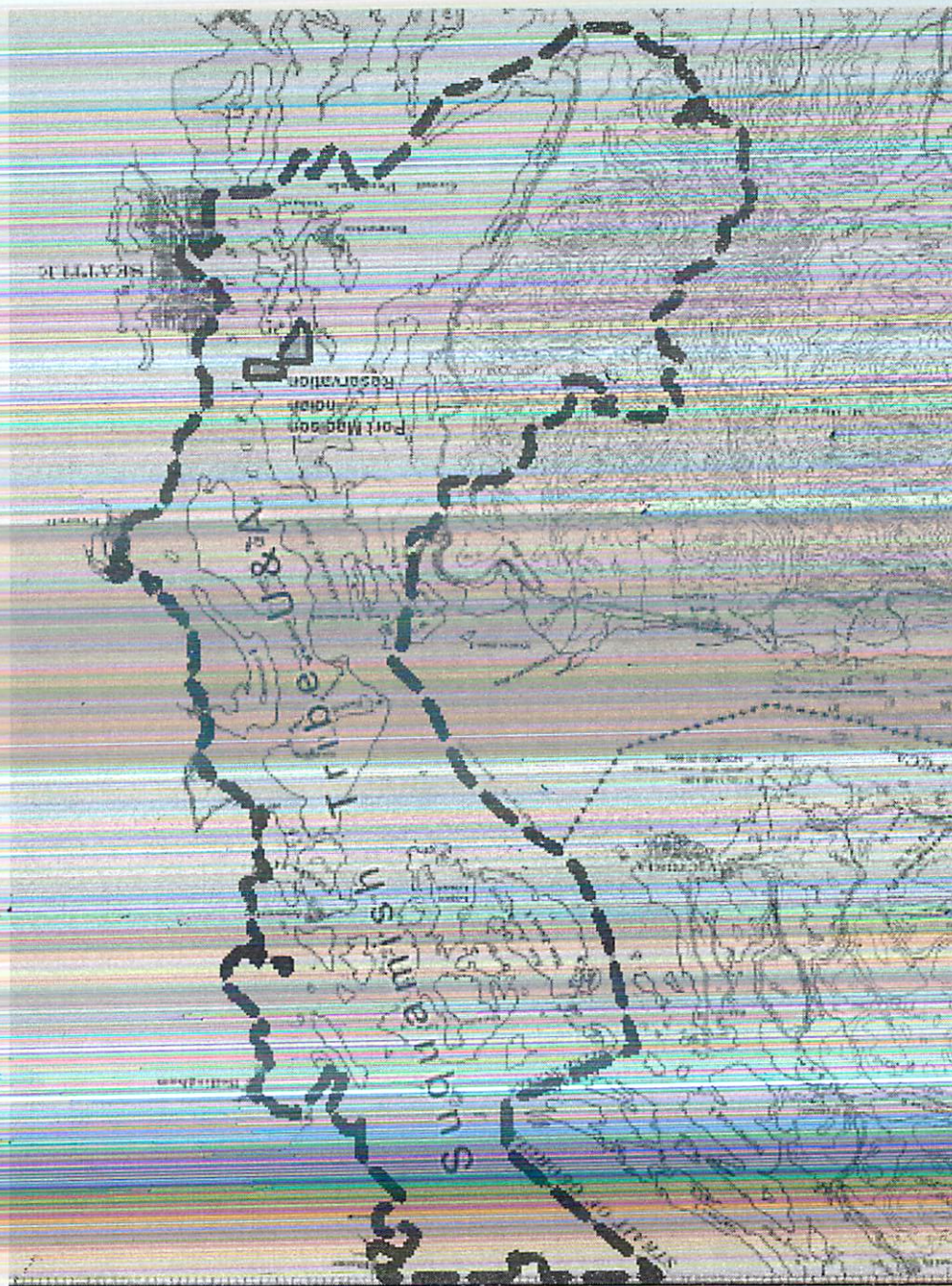
- Boeing
- Seattle City Light
- Commercial property

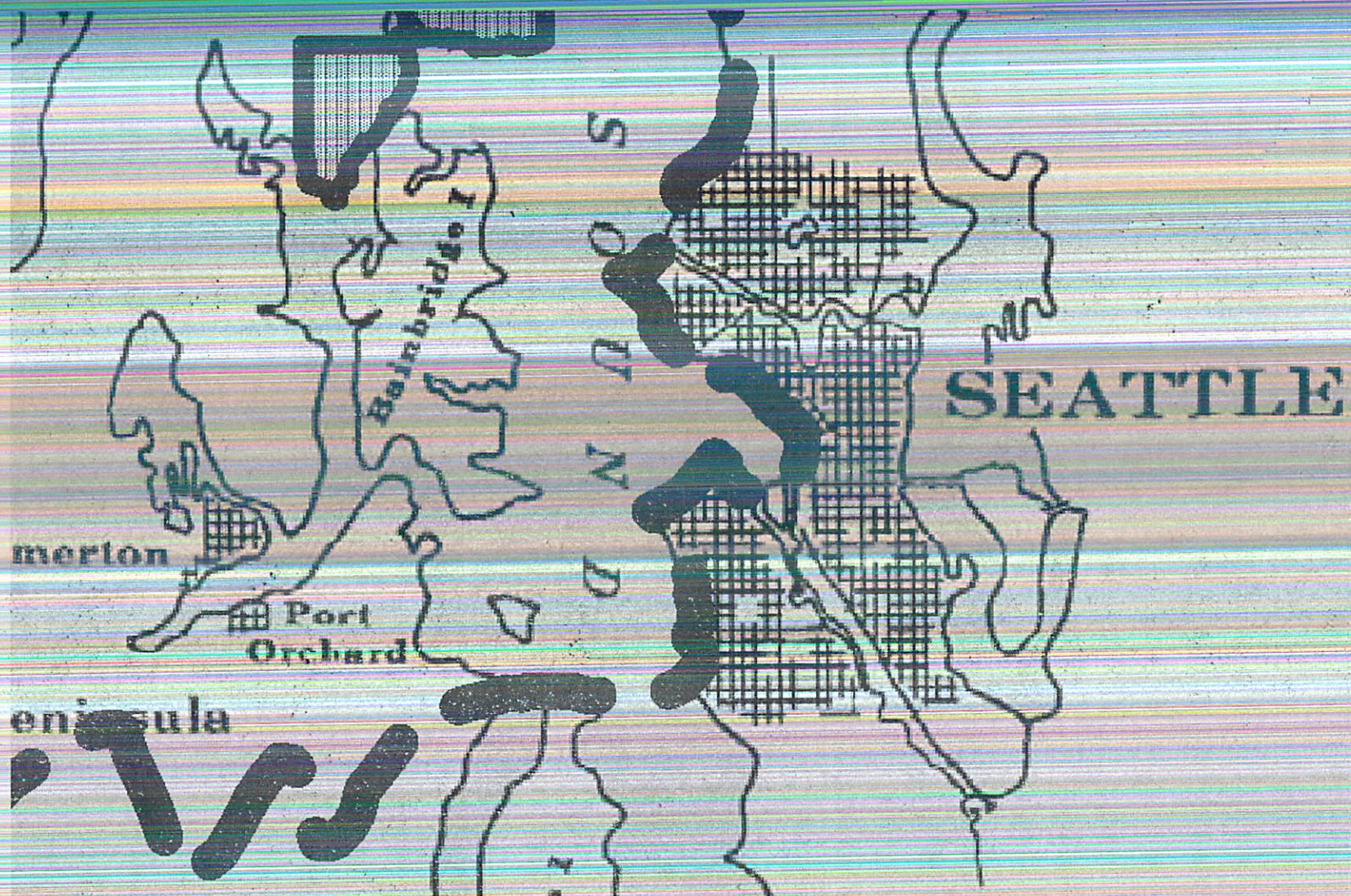


The Duwamish, A Mixed Use Estuary

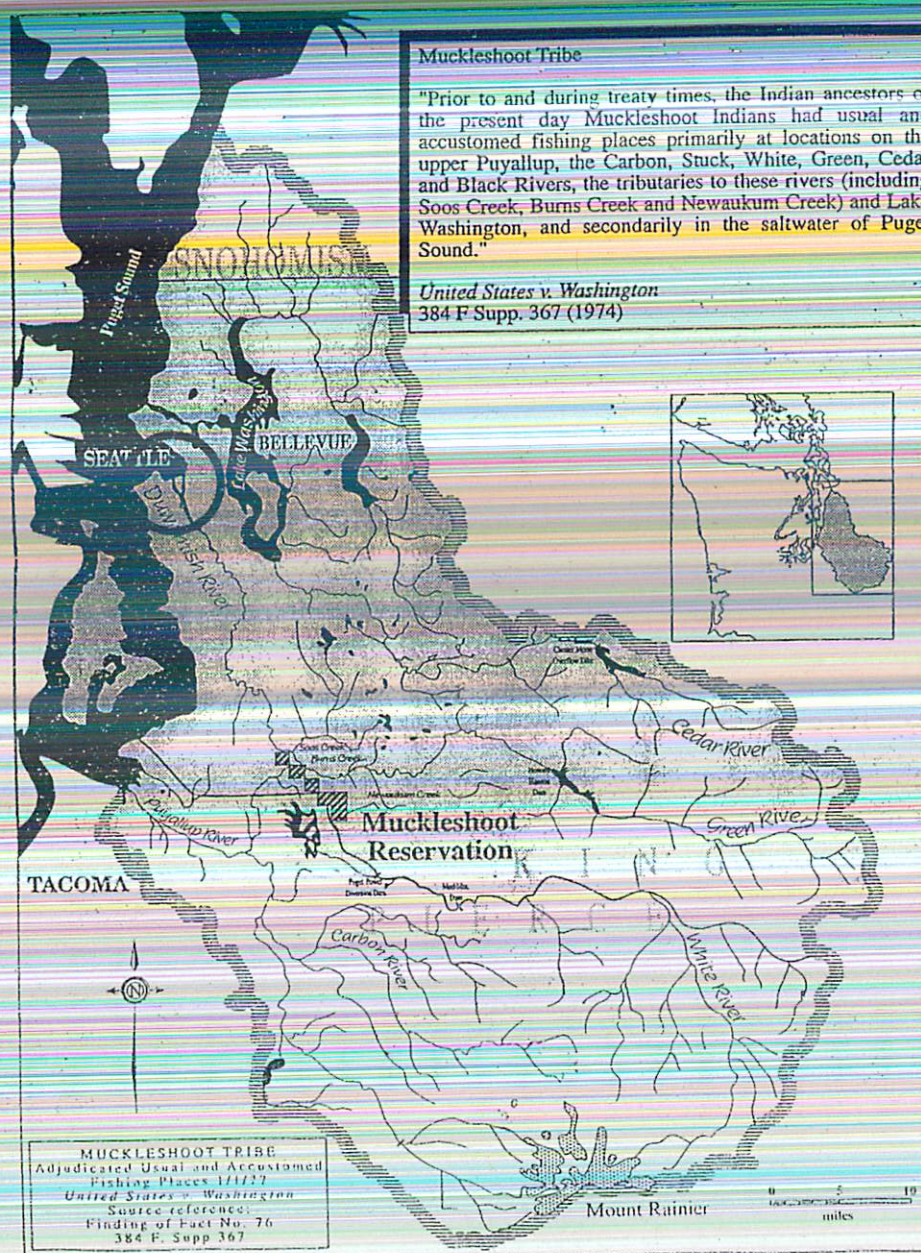
- Commercial facilities: cement plants, glass recycling, foundries, chemical manufacturing and shipping.
- Tribal salmon net fishing
- Residences and marinas are found throughout the Waterway.
- Recreational: hiking, kayaking, playing at parks, crabbing, *fishing*, *swimming*

Tribal Shellfish Issues





MUCKLESHOOT INDIAN TRIBE TREATY AREA DRAINAGE



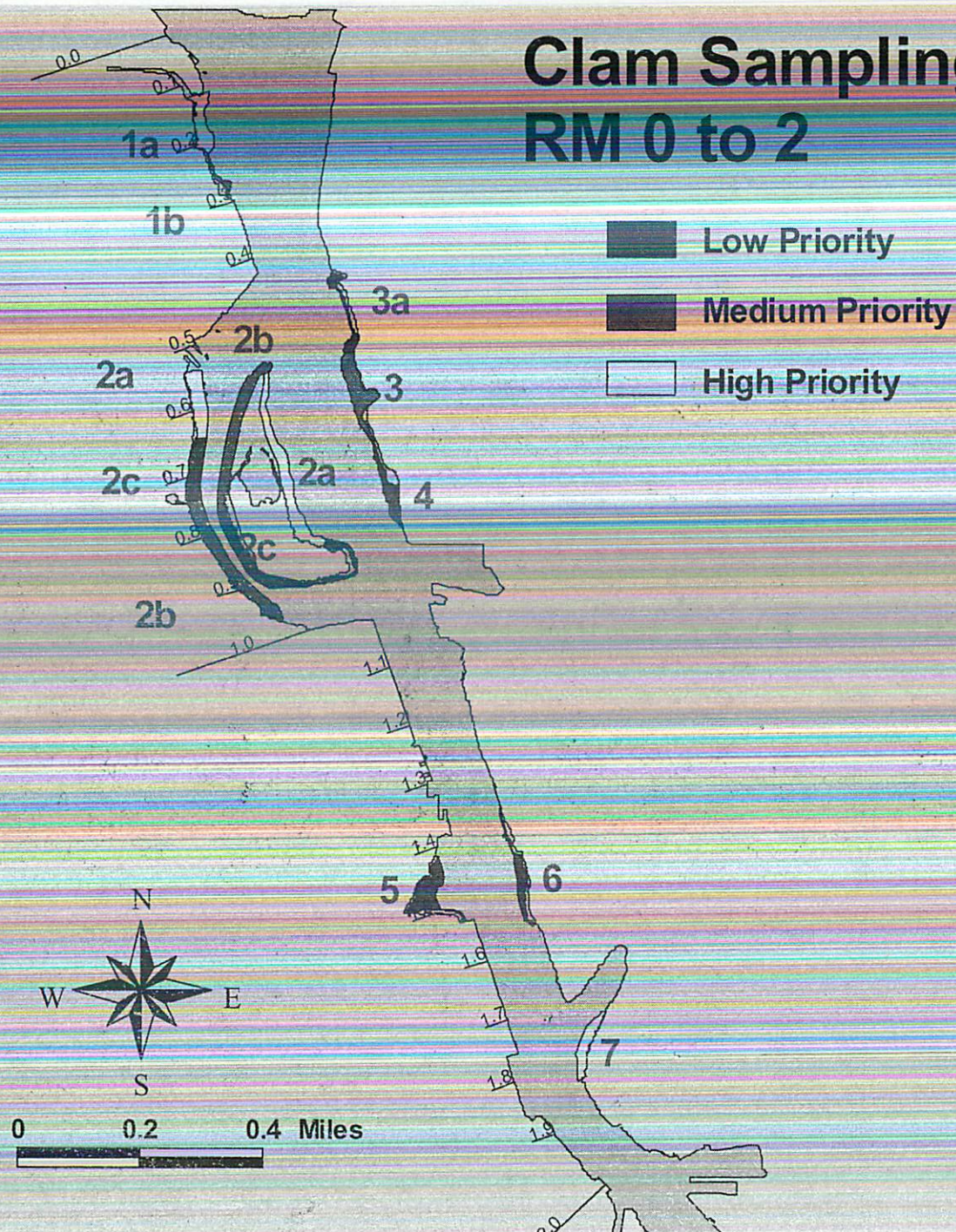
Human Health Risk Analysis and Duwamish Shellfish Resources

- Contamination precludes shellfish harvest.
- However, analysis of health risks done assuming resources are safe.
- Quantity and type of shellfish resources a factor in selecting shellfish ingestion rates for risk analysis.
- Separate clam and crab/shrimp surveys being conducted.

Components of the Clam Survey

- Systematic grid survey of beaches using a random component to assess clam density.
- Catch per unit effort (CPUE) to determine potential harvest by a subsistence consumer.

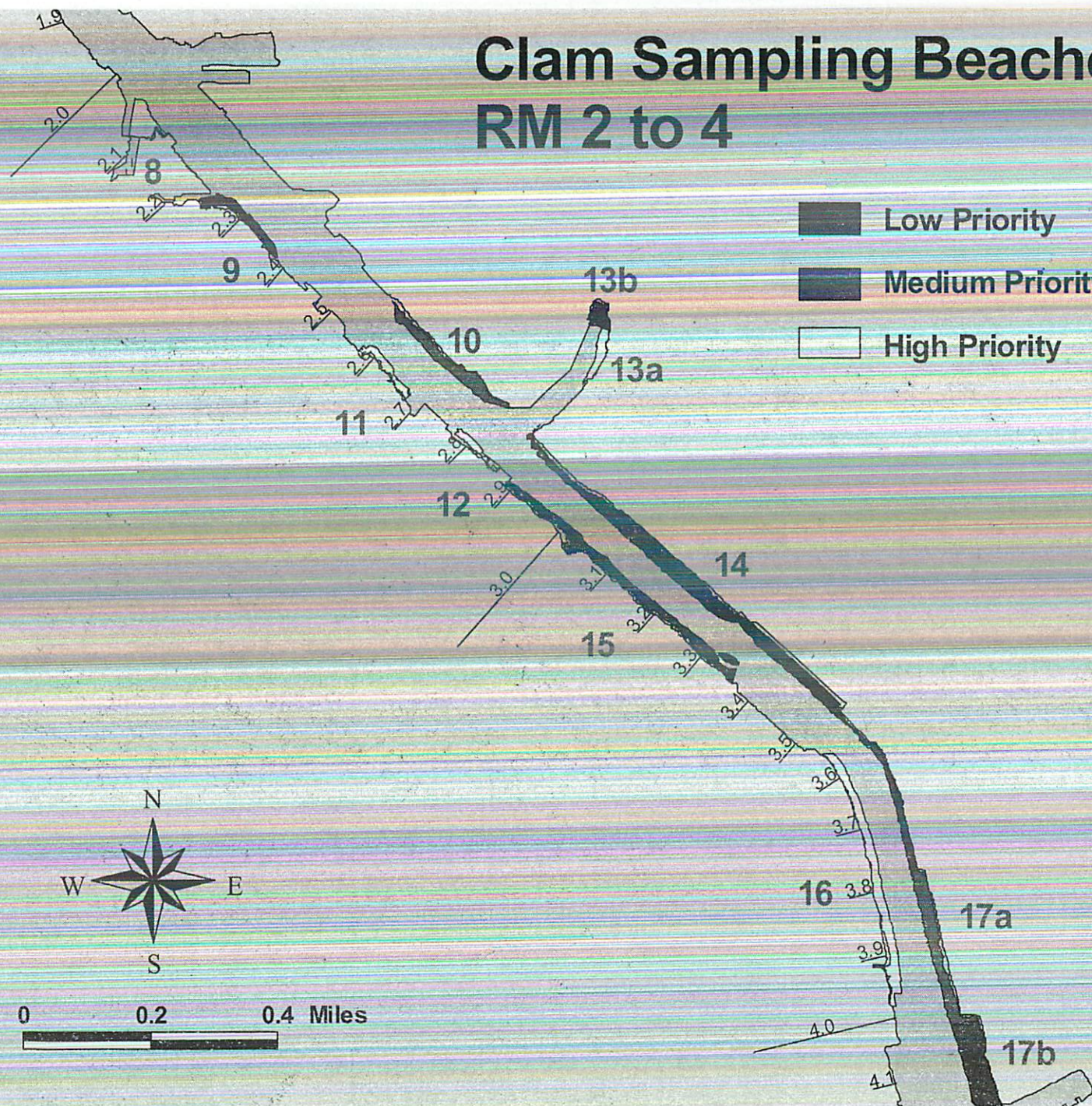
Clam Sampling Beaches RM 0 to 2



Initial Findings of Clam Survey

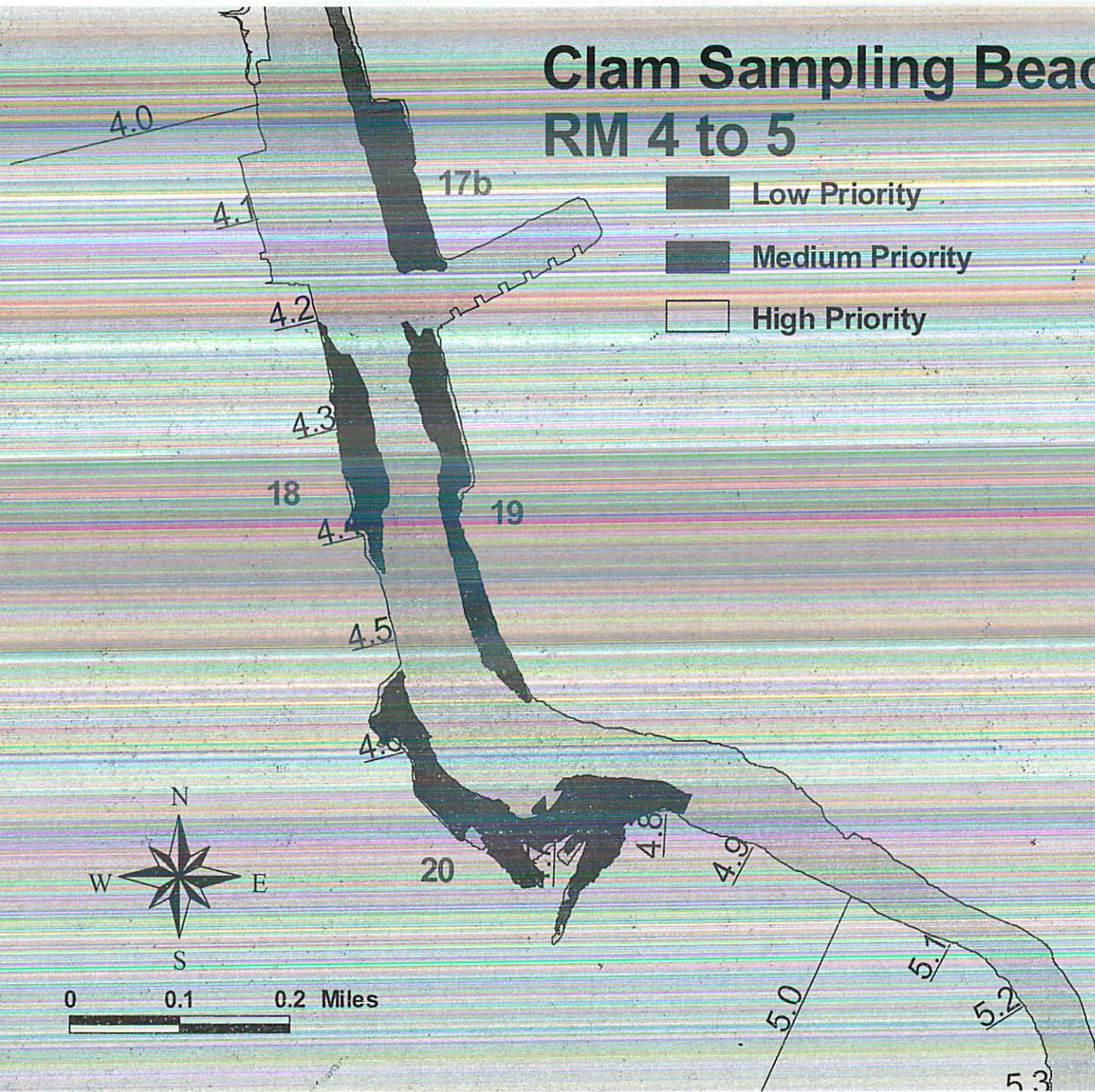
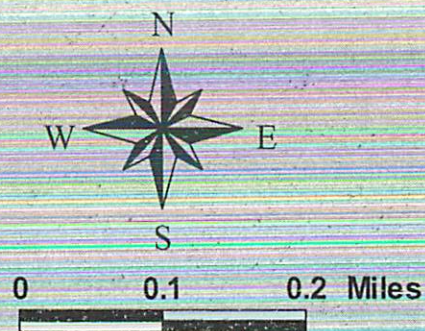
- Clam densities lower than those found at commercial beaches.
- Clams generally of small size.
- CPUE study found substantial harvest of edible clams possible.

Clam Sampling Beaches RM 2 to 4



Clam Sampling Beaches RM 4 to 5

- Low Priority
- Medium Priority
- High Priority

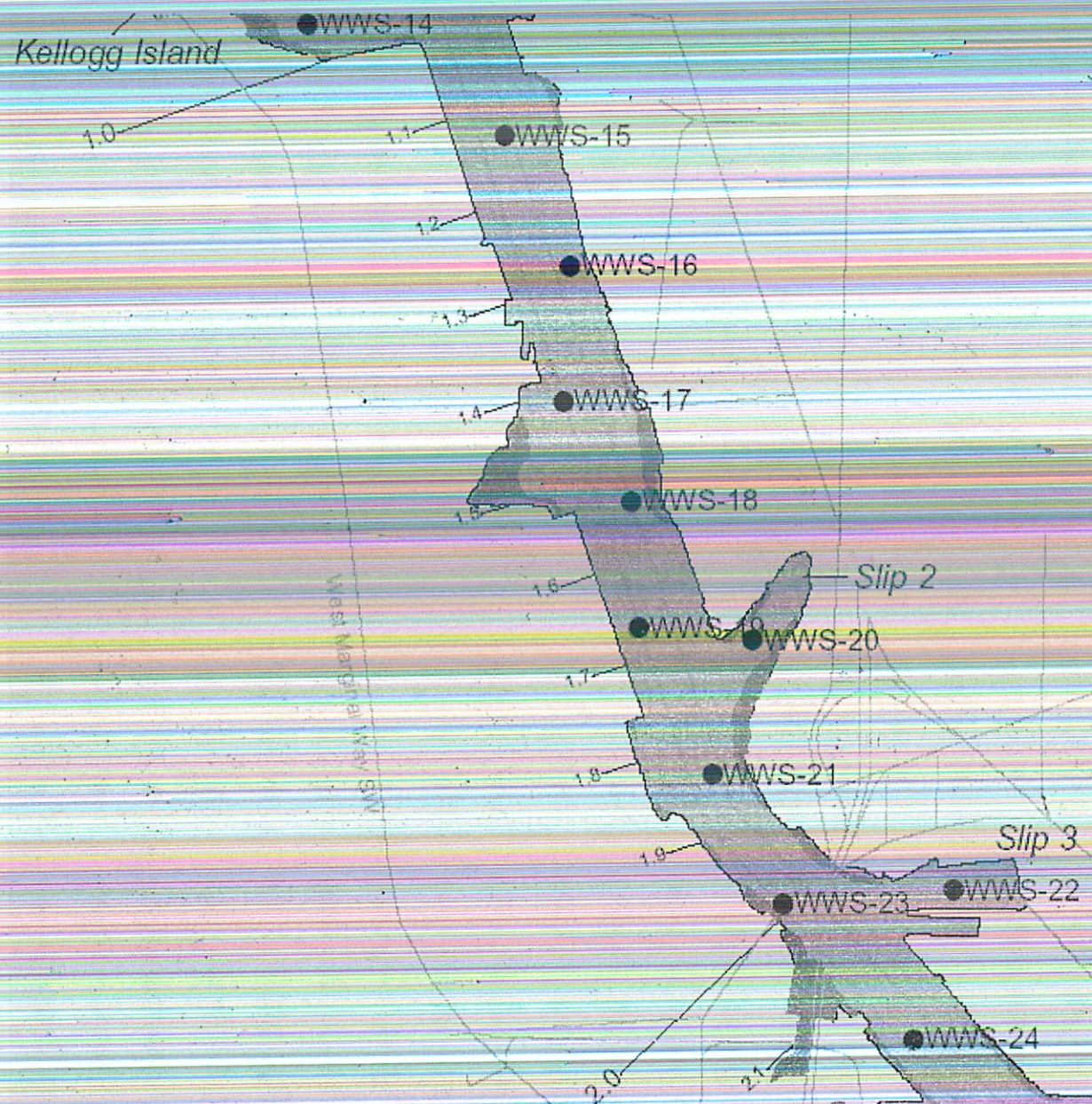


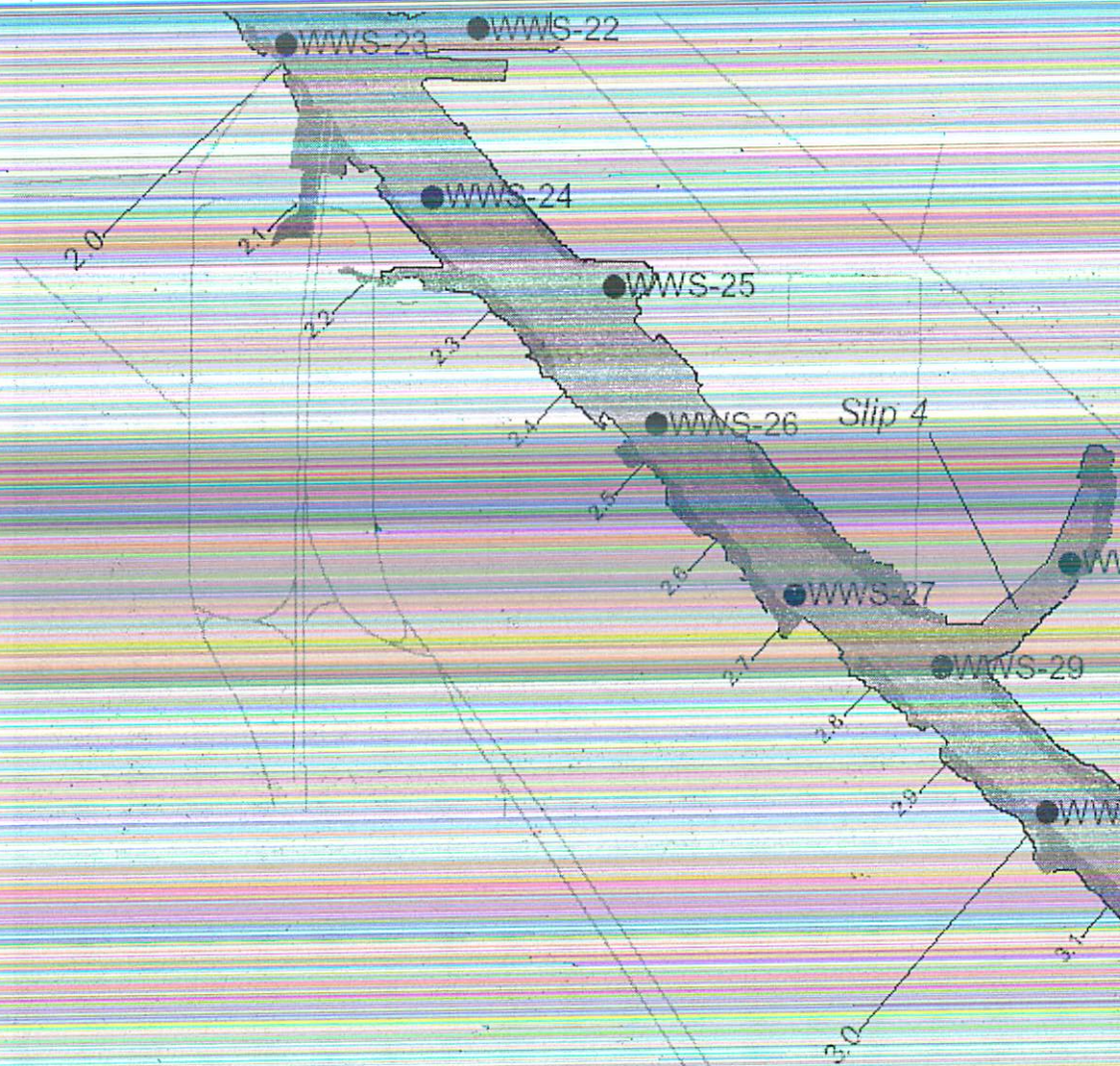
Crab and Shrimp Sampling

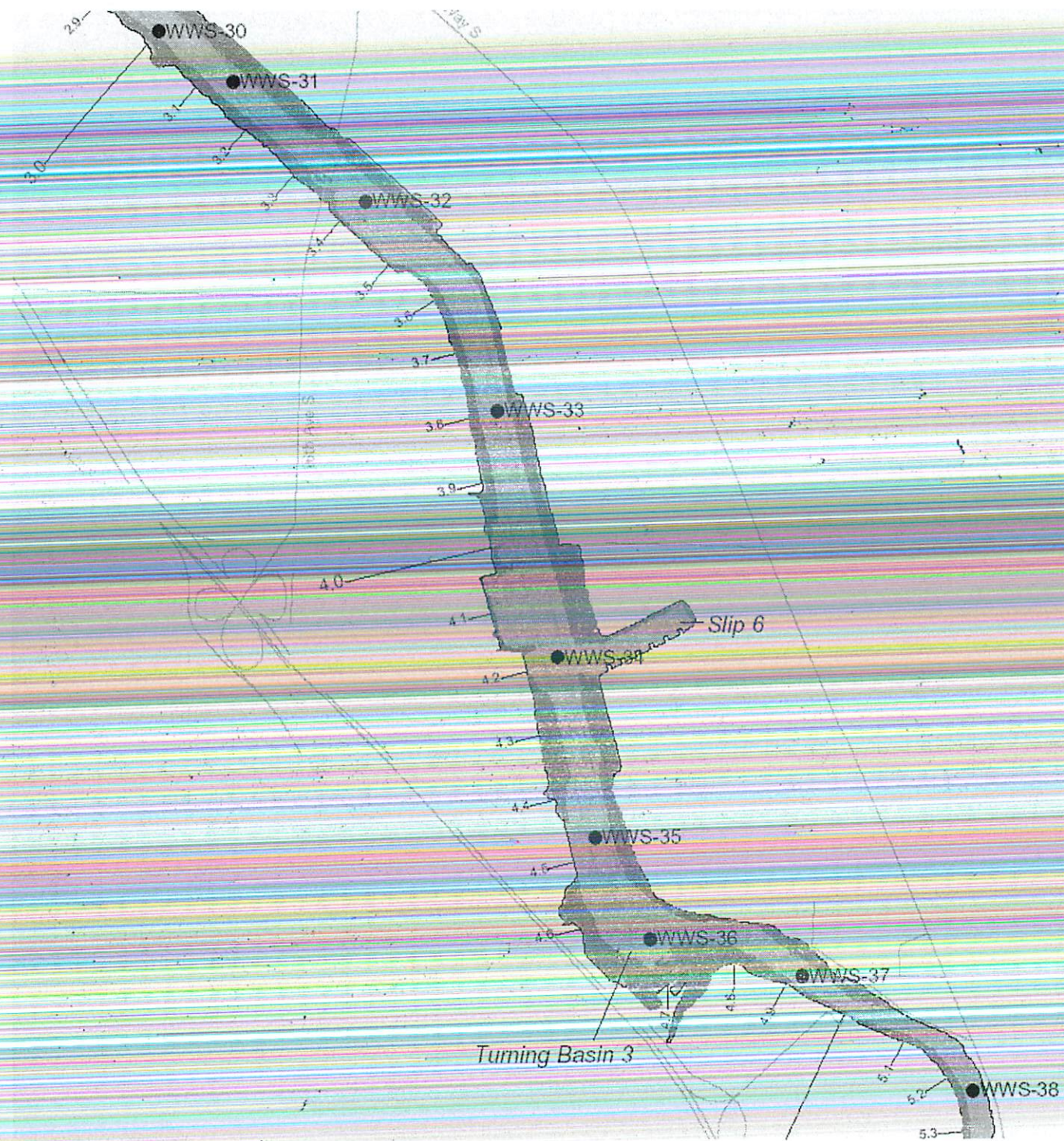


Pilot Study Crab Catch (4 hr/24 hr soak times)

Station	<i>G. Gracilis</i>	<i>G. Productus</i>	<i>G. Magister</i>
WWS-1	5/0	9/2	8/5
WWS-2	10/1	1/0	1/5
WWS-4	12/0	2/4	7/5
WWS-8	14/4	0/1	1/1
WWS-12	11/5	0/0	4/5
WWS-14	10/4	0/0	1/0







Acknowledgements

- **WA Dept. of Health:** Marcia Henning, Gary Palcisko, Robert Duff
- **King County Public Health:** Peter Isaacson
- **Windward Environmental:** Scott Shotwell
- **NOAA**
- **Muckleshoot Tribe**
- **Suquamish Tribe**